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No. 7

EFFECT OF SEWERAGE UPON HEALTH

Relation Between the Growth of the Sewerage System, Number of Buildings Connected Therewith and the Typhoid Rate in Louisville, Ky.—Data from Other Cities—Fly an Important Factor.

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Although nearly all intelligent people will to-day agree that there is great value in a comprehensive sewer system, it is not always easy to demonstrate in particular cases all the advantages gained by its installation. A system for the drainage of storm water in a city is not only a convenience but is a valuable asset because, by preventing damage from flooding in storms, it increases the value of property. In a system of sanitary sewers, the beneficial results are convenience in the disposal of household wastes, a saving in the expense of repeated emptying of cesspools, and above all the resulting improvement in the public health. It has not always been possible to establish and define the relation existing between the prevalence of disease and the degree of sewerage in any community, even by those whose confidence has been greatest in the existence of an intimate relation. It is of the greatest importance, however, that the value of all agencies affecting the public health should be well understood, particularly by those in whose hands have been entrusted the responsibility of the government.

For years typhoid fever has been considered a preventable disease, and on this account the degree of its prevalence indicates the efficiency of a community in guarding the welfare of its own inhabitants. It is well known that this disease is caused by the typhoid bacillus which, under the favorable environment within the human body, multiplies rapidly and is cast off in countless numbers from the alimentary canal and kidneys. It is a function of the sewer system to convey the waste products containing these germs from the patient to a point of disposal where they can do no harm. Should they be carried to any stream or body of water without treatment, to be drawn into a water supply or to infect shellfish growing therein, an epidemic may result. The infection is too often communicated directly from a sick person to a well one. In the absence of an efficient sewer system, it might find its way, on account of unsanitary conditions, to milk cans or food supplies. If deposited in exposed privies, the infection might be washed over the surface or through underground channels to shallow wells, or it might be conveyed by flies to accessible food.

The importance of the part played by the fly was forcibly demonstrated during the Spanish war. In the camps of the United States troops, there occurred 1,600 deaths from typhoid fever, equivalent to a death rate of 1,463 per 100,000. A commission appointed to investigate the cause of this epidemic concluded that it was due, not to the condition of the water or food as

it was brought to the camp, but principally to flies which "swarmed over the infected fecal matter in the pits and then visited and fed upon the food prepared for the soldiers."

One experimenter, in order to determine the responsibility of the fly as a disease carrier, deposited some lime in a privy vault and placed in the window of a house nearby a loaf of chocolate-frosted cake. It was not long before flies were found upon the cake leaving upon it a track of white lime.

In a report to the Merchants' Association of New York on the "Pollution of New York Harbor as a Menace to the Health by the Dissemination of Intestinal Diseases through the agency of the common House Fly," D. D. Jackson showed that the prevalence of typhoid fever and other intestinal diseases is coincident with the prevalence of flies, and that the greatest number of deaths from such diseases occurs near the river front where the open or poorly constructed sewers scatter the filth where the flies can feed upon it or along the wharves with their inadequate accommodations and the resulting accumulation of filth. It is particularly interesting to note in this connection that a sanitary survey made of the city of Louisville in 1893 by Dr. Rudolph Hering revealed the prevalence of typhoid fever in the neighborhood of Beargrass creek, a very small stream into which sewers draining a considerable proportion of the city discharged. The discharge of sewage from these sewers has been discontinued since the construction within the past five years of an intercepting sewer along the creek valley.

That the prompt removal by means of a sewerage system of wastes from the household results in an improved healthfulness of the city has been recorded in case of the city of Berlin. In that city the public water supply was introduced in 1856 and was followed by a decrease in its typhoid fever death rate. From 1856 until 1875, the average rate was about 33 per 100,000. In 1876, the first considerable system of sewers was put in operation. From that time until 1890, the typhoid fever death rate dropped to an average of 10 per 100,000.

In order to determine what effect, if any, the construction of sewers has had upon the public health of Louisville, a study has been made of the growth of the sewer system with relation to the population and typhoid fever death rate since 1880. As a water filtration plant has been in operation since August, 1909, the study may best be divided into two periods, one extending from 1881 to 1909 and the other for the period since 1909.

In the diagram there is shown the population based on census returns and directory enumerations, the typhoid

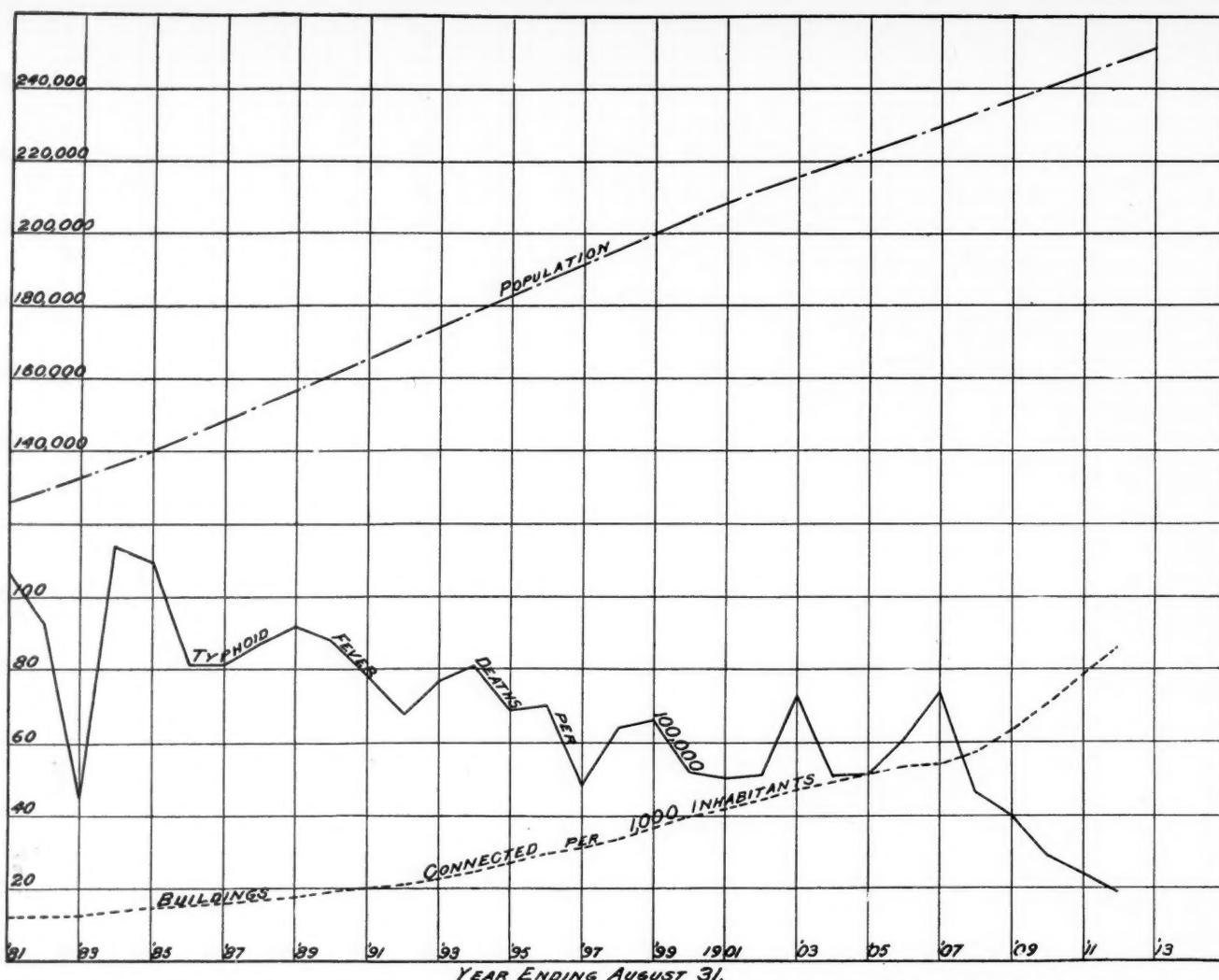


DIAGRAM NO. 1.—POPULATION, GROWTH OF SEWERAGE SYSTEM AND TYPHOID DEATH RATE, FROM 1881 TO 1912.

fever death rate and the growth of the sewer system as indicated by the number of buildings connected.

In the following table is given a summary of the data from 1881 to 1909:

	Buildings connected per 1,000 inhabitants	Deaths from typhoid fever per 100,000
1881-1889, inclusive, average..	15	90
1890-1898, " "	25	71
1899-1907, " "	47	59
1908	57	46
1909	64	40

From this it will be seen that there was a decline in the typhoid fever death rate in the whole period from 90 to 40, while the buildings connected per 1,000 inhabitants were increased from 15 to 64.

In order that the relation between the two may be more readily seen, the second diagram has been prepared, the curve in this which indicates the typhoid fever rate being inverted. Although, as might have been expected, there has been considerable fluctuation in the typhoid rate from year to year, the general trend of the typhoid curve follows very closely the curve of buildings sewered per 1,000.

It is pertinent in this connection to quote from the report of the health officer for the fiscal year ending August 31, 1909:

It is a distinct pleasure to be able to report that typhoid fever in this city reached the lowest mark that has ever been recorded. Thirteen fewer deaths than in 1908, and seventy-two fewer than in 1907, cannot but be gratifying to our people and a cause for congratulation.

The experience of the city for the three years follow-

ing the introduction of filtered water August, 1909, is shown in the following:

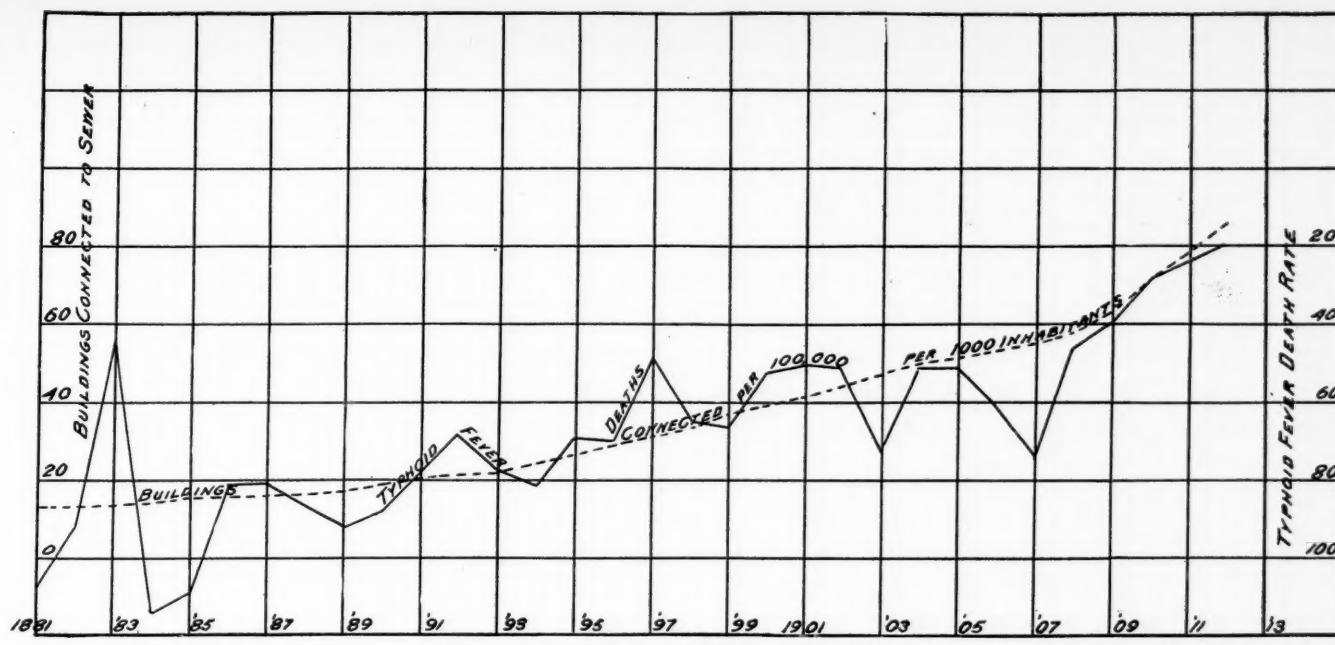
Year ending August 31,	Buildings connected per 1,000 inhabitants	Deaths from typhoid fever per 100,000
1910..	72	29
" 1911..	78	24
" 1912..	86	19

It is seen from this that there has been a steady and very decided decline in typhoid fever in these years.

As the installation of water purification plants has been so notably successful in reducing the amount of typhoid fever it is but natural that the improvement in the typhoid rate should be attributed to the introduction of filtered water. An example of this sentiment is illustrated in a continuation of the quotation from the 1909 report of the health officer given above:

This splendid showing is unquestionably due to the final completion and successful operation of the long delayed filter plant, thereby insuring to our whole people a bountiful supply of as pure water as is enjoyed by the citizens of any city in the United States. Secondly, to an improved milk supply, and, finally, to an improved sanitary condition of our streets, alleys, privies and premises. With the completion of the comprehensive sewerage system now well under way, the elimination thereby of the surface closet, and the final absolute abolition of the unsanitary, filthy, disease-breeding street pumps, we confidently expect a much greater decrease in typhoid fever hereafter.

It is probable that the health officer wrote this statement some time after the close of the fiscal year, otherwise he would have realized that the record of this year could not have been influenced by the water filtration, that having been commenced but two weeks before the close of the year's records.



NO. 2.—RELATION BETWEEN GROWTH OF SEWERAGE SYSTEM AND TYPHOID DEATH RATE, FROM 1881 TO 1912.

The Ohio river and its tributaries, from which Louisville obtains its water supply, receives the sewage from many cities, among them being Cincinnati and Pittsburgh. This river, however, has an enormous drainage area and, therefore, carries a large volume of water even in the dry season and there are no cities or towns immediately above the intake of Louisville's water supply. On account of the very large population on the water-shed of the river, one might naturally expect to find a badly polluted water at Louisville, but owing to the large dilution the sewage receives and the agencies at work in the water tending to purify the organic matter during the time of its passage from the cities above to Louisville, the water may not have been as dangerous as was feared.

The president of the Water company in 1894 reported that daily bacteriological examinations of the Ohio river water had been made for a period of one year and that no disease-producing germs had been found. He claimed that, "therefore, cases of typhoid fever and other zymotic diseases that occur in the city do not owe their origin to the water supply of the company, if the numerous tests that we have made can be relied upon."

The experience of the city of Washington, D. C., has shown that water supplies are occasionally less responsible for disease than they had been thought to be. In 1906 a filter was put into operation to reduce the amount of those diseases which have been traced to water supplies. The failure of this filter to cause a visible reduction in typhoid fever in the first year of its operation was the cause of both surprise and disappointment. Investigation brought out the fact that the filter was of the highest degree of efficiency and it was concluded that the prevalence of typhoid fever was due to other causes such as importation from outside the city, direct contact, milk and other food supplies and spread of infection from privies by contact or by the agencies of flies. It was shown in the investigation that the raw Potomac river water underwent a purification before filtration to the extent of a removal of 93 per cent of its bacteria in large storage reservoirs which had been built previously.

A very strong indication that the spread of typhoid fever in Louisville has been due to causes other than the water supply is given by the following table obtained from the report of the Health Department for the year ending September 1, 1911:

TYPHOID FEVER CASES FOR YEAR ENDING AUGUST 31, 1911.

Cases contracted outside city.....	5	=	3.6%
Cases drinking well, spring or cistern water. 24	=	17.4%	
Cases drinking filtered river water..... 109	=	79%	
Total	138	=	100%
Cases using open privy vaults..... 101	=	73%	

It will be noted from this that in only 17.4 per cent of the cases was well, spring or cistern water used, while the remainder of those contracting the disease within the city, or 79 per cent of the whole number of cases, used the filtered river water. It is also to be noted that 73 per cent of the cases occurred in families which, being without sewerage facilities, made use of privy vaults. It is very significant that in so large a percentage of the number of cases, nothing but purified water was used, and through the absence of sewerage the spread of infection by means of the fly in conjunction with the open privy was rendered very easy.

That the numerous wells in the city cannot be responsible in any great degree for the typhoid is indicated by the fact that the decrease in this disease has not been accompanied by a decrease in the number of wells. The report of the Health Department for 1910 stated that "The town pump stands successfully evading the law for years."

Referring again to the curves it will be noticed that the improvement in the typhoid rate became very rapid in the fiscal year ending August 31, 1909, during which year there was a far larger increase in buildings connected than had ever been made before. Furthermore this rapid decrease in typhoid continued from year to year as did also the great increase in the number of buildings connected. Had the improvement in the health been due to the purification of the water supply it would have shown a change comparatively abrupt, beginning or occurring after the introduction of the filtered water.

It is not the purpose of this article to detract from the importance of water purification in general or to question the efficiency of the Louisville water filtration, for the writer has the greatest confidence in both. The importance of filtration in Louisville is shown by the bacteriological tests of the water company since the commencement of the operation of the filter, these tests indicating in the past three or four years increasing



GUTTER IN UNSEWERED SECTION OF LOUISVILLE.
Containing stagnant water covered with green scum.

amounts of the colon bacilli in the river water, proving that at the present time sewage contamination in recognizable and increasing amounts is going on. This will without doubt continue to increase in the future as the population on the river basin, particularly near the shores above Louisville, increases.

It is believed, however, that the experience in Louisville proves that the extension of the sewerage system has resulted in a great improvement in the health of the city which, if calculated on the usual basis of a valuation of \$5,000 or \$6,000 per life, amounts to considerable proportions financially, as well as in the incalculable personal value of the life to family and friends.

HIGH TENSION ELECTRIC TRANSMISSION.

The economical transmission of current over long distances requires operation at high voltages, 66,000 volts being by no means uncommon for distances under 60 miles. Considerable concern has been expressed as to the expediency of permitting such high voltages in public streets and roads. Concerning this the Massachusetts Gas & Electric Light Commissioners report: "It should be borne in mind that the voltage at which the ordinary distribution lines have for a considerable period been operated is easily fatal to persons coming in contact with them. The increase in voltage increases danger to life, not in being proportionately more fatal, but in being more difficult to control. It is fair to add that, from reports of accidents caused by electricity made to this board, there is no apparent increase in such accidents due to the increasingly common use of higher voltages. Without undertaking to insist upon the exact limit, the board is of the opinion that overhead lines operated at very high voltages should, so far as practicable, be kept off the streets."

WATER FILTRATION IN LOUISVILLE.

During the year 1912 the ability of the purification plant of Louisville, Ky., to handle very turbid water was tested, as the water in the Ohio river carried more suspended matter than usual, and the filters removed a total of 9,800 tons of mud during the year, or an average of 2,100 pounds for each million gallons of water filtered, or 26 tons of mud daily. Forty-nine per cent of this mud was left in the sedimentation reservoirs, 45 per cent in the coagulating basin and 6 per cent was removed by the filters. Of the bacteria, 58 per cent were removed by plain sedimentation, 34 per cent through coagulation, and 7 per cent by filtration. The average results of the plant for the year are indicated by the following figures: Bacteria per c. c. in river water, 14,017, in the filtered water, 112. Turbidity of river water, 272, of filtered water, zero. Free ammonia was reduced 28 per cent, albuminoid ammonia, 82.6 per cent, nitrates, 100 per cent, oxygen consumed, 74.9 per cent, temporary hardness, 18.2 per cent. Nitrates were increased 4.1 per cent, and permanent hardness 27.1 per cent; 2.02 per cent of the filtered water was used for washing filters. The average amount of aluminum sulphate used was 1.18 grains per gallon.

The average cost per million gallons of operating the plant was as follows: Superintendent and laboratory payroll, 47 cents; filter operator's payroll, 89 cents; coagulant, \$1.53; wash water, 4 cents; heat, light and power, 20 cents; supplies, 4 cents; repairs, 22 cents; incidentals, 3 cents; a total of \$3.42 per million gallons.

The typhoid death rate during 1912 was 18 per hundred thousand, a decrease of 18 per cent over the rate for 1911, and a total decrease of nearly 70 per cent as compared with the average of the four years preceding the installation of the filter.

NEW YORK TAXICAB ORDINANCE.

A new taxicab ordinance went into effect in New York City August 1st, which it is hoped and believed will provide a remedy for many of the annoyances and abuses connected with the taxicab business, and in fact the general public cab business of the city, for many years.

The principal changes which the ordinance is intended to bring about are a lower rate of fare; strict supervision over chauffeurs to prevent the employment of men who are careless or exhibit a criminal tendency; securing simple and easily understood systems of meters and stand privileges; eliminating the payment of hundreds of thousands of dollars by taxicabs to hotels for stand privileges in front of them, and providing a special force of men, authorized to issuing summonses, whose duty it will be to see that the taxicab companies obey the new law. Every taxicab and every chauffeur must carry a badge or plate, to be renewed each year on February 1st, to secure which the driver must have met the requirements of the Bureau of Licenses, and the vehicle and meter must have been passed by the same. Spaces along the curb or "stands" will be designated by signs mounted upon artistic bronze posts.

The Bureau of Licenses is now devising a scheme for providing the more important public stands, if not all of them, with telephone service, although the details of this have not yet been worked out.

The driver's license will be issued in the form of a book, on the inside cover of which will be his name, address and photograph; also four or five pages on which every violation or reprimand will be entered. If a policeman issues a summons it must be recorded in this book, and the disposition of the case added. A heavy penalty is imposed for tampering with these records or mutilating them in any way. If a license is once revoked, the

man will never again be able to obtain another license. A special bureau known as the "Taxicab Bureau" will be under the supervision of a deputy chief, of the Bureau of Licenses, who will have charge of the carrying out of the ordinance.

Although the ordinance went into effect on August 1st, it is not possible to have it in full force yet, since the inspection garage can pass on only about six taxicabs a day, although a new building is under erection in which twenty-five taxicabs a day can be inspected. There will therefore be a period of transition for several weeks until the taxicabs can all be passed upon. Each new meter will be tested for 48 hours, both as to mileage and waiting time, for both one and two passengers.

SEWERAGE AND TYPHOID FEVER.

In December, 1912, there was an outbreak of typhoid fever in Marysville, Ohio, which was investigated by the State Board of Health, and the result of their investigation is reported in the monthly bulletin of the State Board for June. As is customary in such cases, investigation was made of the milk supplies, the water supplies (including wells and cisterns), ice and raw food, as possible sources of the epidemic; but the conclusions seemed to be unquestionable that none of these was responsible. The original cases were apparently introduced from outside, but the cause of others operated continuously over a period of at least two months. The epidemiologist of the State Board believed that, excepting five cases characterized as imported, almost every case in Marysville can be logically attributed to contact infection, coupled with fly transmission and neighborhood infection.

This calls attention to the importance of the fact that there was no system of sanitary sewerage in Marysville, and that most of the lanes, alleys and many of the yards afforded excellent opportunities for the breeding of house flies. Judging from the condition of the alleys and yards, there was no system of garbage collection. This case forcibly illustrates the fact that sewerage and garbage collection, which have sometimes been characterized as matters of housekeeping but not intimately connected with public health, may exert a very important influence upon public health.

ALBANY WIRE CONDUITS.

In his report for the year 1912, Frank R. Lanagan, city engineer of Albany, N. Y., discussed the subject of tearing up streets for laying mains, conduits and service connections to the same which form such a troublesome problem in so many cities. Some years ago the council of that city passed an ordinance requiring all public service corporations to place their wires and cables beneath the surface of the street, at the same time removing the poles, in a certain defined business district in the city. This work has been done not only at considerable expense to the companies, but also to the inconvenience of traffic and the owners of the abutting property, as well as to the detriment of the pavements which were cut through. In constructing sewers in Albany, these are placed under the sidewalks where possible, in order to avoid cuts in the new pavements for house connections, etc., and where it is not possible to lay the sewers under the sidewalks, the house connections or laterals are laid from the sewer to the back of the curb line in front of each house and vacant lot before permanent pavements are laid. Water services also are laid from the main to the back of the curb line for each probable connection, and the Municipal Gas Company is doing the same with its gas service pipes. Says Mr. Lanagan: "The city is spending about \$25,000 annually for the paving of new streets. It would be wise foresight on the

part of the city to require all public service corporations to lay main and service conduits in new streets about to be paved or old streets about to be repaved, previous to paving to avoid any future necessity of tearing up a paved street. Then there will be no need in the immediate or distant future of making a cut in any new pavement for any purpose unless it will be a break or a settlement. This will remove at the same time the need of unsightly poles strung with wires in the residential section of the city. It is a fact that no sooner has this Bureau completed a new street improvement, than the telephone company or companies or the light company or some other public service corporation, or all, come along, erect their poles and wires and start the merry work of disfiguring the landscape.

"If each corporation places its own conduit, then there may be two or more lines in a street, which condition is undesirable. It would be better for the city that one conduit be laid and used jointly by the corporation, or if they are unable to agree together on such an arrangement, then the city should build the conduit, make the corporations use it and charge them rental."

NEW YORK'S SMOKE DECISION.

A short time ago the Department of Health of New York City brought a suit against the New York Edison Company in the Court of Special Sessions for infraction of that section of the sanitary code which provides that "No person shall cause, suffer or allow dense smoke to be discharged from any building, vessel, stationary or locomotive engine, or motor vehicle, place or premises within the city of New York." In July a decision was rendered by that court that this ordinance was unconstitutional. The Department of Health will make an appeal from this decision at the earliest possible moment, so that it cannot be considered as final; but the opinions of the court upon which it based this decision are of interest. The decision is quite lengthy, but the following quotations give the more significant portions of it:

Every such ordinance to be a proper exercise of police power must be reasonable and not a general restriction.—An ordinance which purports to legislate for public safety must tend in some appreciable way to that end. Unless there is a substantial connection between the assumed purpose of the ordinance and the end to be accomplished, such ordinance is unenforceable.

The defendant contends that section 181 of the Sanitary Code is unreasonable and oppressive upon its face, because it prohibits the discharge of all "dense smoke" from any building, place or premises within the City of New York irrespective of the color or the degree of soot, cinders or other injurious matter it may contain, if any; irrespective of the quantity or volume of the smoke emitted, and of the time or length of time the same is discharged, and irrespective also of the locality or surroundings where the smoke is discharged.

The ordinance upheld by the Court of Appeals in the case of the City of Rochester vs. Macauley-Fien Manufacturing Co. (199 N. Y., 207), is an example of a reasonable and proper ordinance regulating the emissions of smoke. That ordinance established a color scale determining by comparison the degree of darkness of smoke omitted, and forbade the emission of dark smoke from any fire not in motion for a period not exceeding five minutes whenever the successful operation of any fire necessarily required such escape. In writing the decision of the court in this case Judge Chase says: "There is a great difference in the smoke, dirt and soot producing qualities of fuel, and in the furnaces where consumed and in the manner of stoking the fires, and as careless and unrestrained use of some fuels tends to produce and discharge into the atmosphere dirt and soot laden smoke that is disagreeable and injurious, the production and discharge of such smoke is a proper subject for reasonable police regulation." The defendant urges that the said section 181 is unreasonable and oppressive, for the reason that it prohibits all dense smoke, whether or not its emission be to the detriment or annoyance of the general public. In other words, it prohibits all

dense smoke, whether or not it actually constitutes a nuisance. This is clearly beyond the powers of the municipal authorities. The effect of such an ordinance is to make all dense smoke as a matter of law a nuisance, without adding the qualifying clause which would require such smoke to be a nuisance before falling within the operation of the law.

Further, the said section 181 is unreasonable and oppressive because it applies generally to all emissions of dense smoke, and contains no qualifying clause exempting from its operation cases where it might possibly be shown that no known fuel consumer or device could have prevented such discharge. For the reason, therefore, that it makes no provision for cases where compliance is impossible, the ordinance is unreasonable and void. The city, in regulating lawful operations, and interfering with private property, must act reasonably, and cannot demand what is impossible. This ordinance, if unreasonable and oppressive, is necessarily unconstitutional and void. It is repugnant to the provisions of the Constitution of the United States and to section 6 of article 1 of the Constitution of the State of New York, which provides that no person shall be deprived of his liberty or property without due process of law. This ordinance, prohibiting as it does the emission of dense smoke, irrespective of reasonable definitions, limitations and qualifications, is a restriction upon the use of private property. The use of furnaces and boilers and the consequent emission of smoke is doubtless necessary to the enjoyment of the ownership of practically every building with the city of New York. A general and unqualified prohibition of the emission of all dense smoke under any and all circumstances, and at all times, is such an unreasonable interference with the use of private property as to constitute a taking thereof without due process of law.

BRICK PAVING IN CUYAHOGA COUNTY.

In a recent address before the engineering students of Ohio State University, Frank R. Lander, Engineer of Cuyahoga County, Ohio, stated that that county had spent \$200,000 on macadam roads before it was finally convinced that modern traffic demanded a more durable road surface. He said that "the various treatments applied to macadam for the purpose of preventing the destructive action of the automobile have not up to date proved very satisfactory, as demonstrated in the parks and boulevards of the city of Cleveland, and they have tried out about everything in the catalog of patented preparations and processes."

"After careful study of the heavy traffic conditions of our county, containing within its boundaries a city of 600,000 inhabitants, and possessing a tax duplicate of over 900 million dollars, after experimenting with various types of pavements and observing the experiments of the city of Cleveland and the smaller municipalities with other types, we have reached the conclusion that the type of improvement which comes the nearest to satisfying all the conditions of traffic in our country is a brick surface laid on a concrete foundation.



CENTER ROAD, CUYAHOGA COUNTY.

"Having reached that conclusion, we have held to it persistently, and advocates of other styles say fanatically, until the county has a network of splendid brick roads leading out in every direction from the county seat to the county line, bringing practically every farm in touch with the city markets all the year around, and bringing the farmer and his family in touch with his neighbors as well as the city in every season of the year.

"Our experience as to cost of maintenance of these brick pavements since the introduction of the concrete base may be estimated very closely. At the expiration of the guarantee period of three years, some of the contractors preferred to pay to the county the sum required to place their work in condition for final acceptance. We have permitted this in a few cases where the contractor was a non-resident. The engineers in these cases made a careful estimate of the amount necessary to make these repairs and required the contractor to deposit a certified check for double that amount to insure the completion of the work by the county, after which he was permitted to withdraw the 5 per cent. guarantee fund."

Estimated Cost of Repairs After Three Years' Use.

	Contract	Cost of	
Road	Price	Miles	Repairs
Broadview No. 1.....	\$80,000	2.55
Canal No. 1.....	120,000	4.30	\$60.00
Fisher No. 1.....	85,000	3.31	50.00
Lake Shore Blvd. No. 1..	83,000	3.01	100.00
Wooster No. 2.....	25,650	1.07

PUBLIC WORK IN ABILENE.

The city of Abilene, Texas, is under commission government, but the commissioners have introduced something approaching the city manager plan by placing city engineer Kenyon Riddle in charge of all public improvements, both construction and maintenance. He has charge of all plumbing, wiring, sewer and water connections, the licenses from which bring in a revenue of about \$15 a month. All street work is in his charge, which it is thought should secure better results than where it is in charge of a street commissioner who is in many cases wholly inexperienced in such work. At the commissioners' meeting every Monday morning the city engineer or manager submits plans for the coming week's work, with a preliminary estimate of its cost, also reporting on the progress and cost of the work done during the past week.

As far as possible checks are substituted for personal supervision of work. For instance, when a street is to be graded, stakes are set and a preliminary estimate of the quantity of work to be done is made. The foreman of the gang, who is usually merely one of the most competent of the laborers, reports the time of the gang, and when the work is completed the engineer can determine from the estimate previously made whether the labor employed upon it was excessive.

The unpaved streets are laid out in three dragging districts, each district comprising 18 miles. Each 30-foot roadway is covered by an 8-foot drag, which makes $4\frac{1}{2}$ miles dragged, at a cost of \$5, or a total cost of dragging of \$15.

The 125,000 yards of pavement are laid off in districts for cleaning, which work is done by hand sweeping and carts at a cost of from 30 to 50 cents per square yard, including the disposal of the sweepings. These latter are placed in sacks, which are collected about 3 o'clock in the afternoon by the city team and hauled to the city dump, about one mile from the centre of the paved district.

A complete record of all underground work has been started, blue-on-white prints of a map of the city being used for this purpose, separate maps being used for sanitary sewer system, storm sewers and water system.

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Smoke Suppression.

Is smoke *per se* a public nuisance and suppressible as such? If so, is it to be classed as a nuisance because detrimental to health, or injurious to buildings, furniture, merchants' wares, etc., or only because it offends the sense of decency and comfort? In a recent decision a New York City court appears to hold that for any given case to be classed as a nuisance, the creation of a specific nuisance thereby must be proven—that the mere emitting of dense smoke is not in itself a nuisance. In this point we believe the decision contradicts many recent ones of the higher courts. But a further point made by this decision—that in prohibiting the discharge of "dense smoke" some definition must be given of what constitutes this—seems a fair criticism of the New York ordinance. It is true that certain of the courts have stated that they "will not indulge in any subtle distinction as to what is meant thereby, but will construe it as ordinarily understood by people in general;" but this very concession indicates a weakness in the ordinance, and one which is unnecessary now that more than one fairly effective method of measuring and describing smoke density is available.

Little reliance is placed nowadays upon the argument that smoke is detrimental to health. The editor of the Monthly Bulletin of the New York City Department of Health recently said: "As a subject for control by the sanitary authorities, smoke, cinders and gases in the present day conception must be classed with those nuisances which offend the sense of decency and comfort

and cause disease only indirectly, if at all." This being the case, why should smoke suppression be placed in the hands of the health department or health officer, as is so generally done? The suppression of nuisances of various kinds is one of the main functions of the police department; the methods of suppression are for the mechanical engineer to determine, and the recognition of the existence of dense smoke and the measuring of the density involve no medical or sanitary principle. Smoke suppression would therefore seem to be a function of the police department; to be exercised through a special officer or squad, if necessary.

City Planning.

The evolution of city planning from the architect's dream of an elaborate civic center of imposing buildings to an attainable regulation of a city's growth to promote the convenience and health of its citizens is making encouraging progress. Items in our August 7th issue briefly noted what two cities are doing in this line, and equally or even more important work is being done by many others. Baltimore is but one of a considerable number of cities which have permanent planning commissions, and recent New Jersey and Pennsylvania laws provide for such commissions in certain cities of those states. The first permanent commission to produce any definite results is that of Hartford, Conn., but others are beginning to show activity, and it is to be hoped that such a commission will before long be recognized as an essential part of any city government.

That the proper functions of such a commission are beginning to be realized is indicated by the committees appointed by the permanent local city planning conference of St. Paul; these being those on street planning; traction lines, railroads and docks; public buildings, open spaces and waterways; housing; legal administrative methods; municipal real estate policies; and taxation. Probably nothing has done more to retard real progress in city planning than the idea entertained both by the people in general and by its most conspicuous advocates, that it meant chiefly, if not exclusively, the expenditure of enormous sums in the total transformation of certain central sections of the city and approaches thereto. We now realize that real city planning is intelligent direction of the growth of a city, with only such changes in the older sections as are necessary for health and economy.

The trouble has been in the past that most cities have, like Topsy, "grewed"; and the idea of city planning is to apply modern science and knowledge to direct their growth. In most cases the various officials already employed by the city possess the knowledge necessary, and what is required is merely to combine the various possessors of this knowledge into one cooperative body and—perhaps most important—to impress upon them, the other officials and the citizens generally the importance of taking forethought, of planning for the future with a view to the coordination of all of the various activities and departments of the municipality. A city planning commission might well consist of merely a council of department heads, the frequent meetings of which would help to give each a more comprehensive view of the city's needs and possibilities, while each should direct and plan for the future growth of certain branches (the city engineer, for instance, preparing the street plan) subject to the approval of the others—practically the commission plan of government applied to this particular subject. But whatever the method, the aim should be intelligent and comprehensive direction of the growth of the city as a whole and in all its branches.



ROADS AND PAVEMENTS

Efficiency Classification for Paving.

Portland, Ore.—Commissioner Dieck, of the Department of Public Works, has formulated a policy governing street paving in this city which will revolutionize street improvements. He has classified the various types of pavements by groups according to their qualities, and only the pavements in each of these groups will be placed in competition. This will prevent competition of an inferior type with a more stable and costly type. The classification is as follows:

For wholesale and industrial districts—only stone blocks or vitrified brick on a 6-in. concrete base. These are the most costly types of pavements, but their life is from 15 to 25 years and therefore cheapest in the long run. Cheap pavements laid on streets with extremely heavy traffic have proved unsatisfactory.

For retail and inside residence districts—standard asphalt, standard bitulithic, class "A" Hassam and asphaltic concrete. Only these four will be allowed in competition. Of these, two are patented pavements and two are not. They range in price from \$1.50 to \$1.85 per square yard and will last from 8 to 15 years.

For streets on which there is light or medium traffic, as in residence districts—asphaltic concrete on a crushed rock base, class "A" gravel bitulithic, class "B" Hassam and Bitucrete. These pavements cost approximately \$1.50 a square yard.

For streets with still lighter traffic and streets which have been improved in the past with gravel or macadam—a redress of bitulithic or asphaltic concrete at a cost of about \$1.35 a square yard.

For outside residence districts with local traffic only—concrete and a light bitucrete costing approximately \$1.25 a square yard. Considering the grade factor:

For streets with grade of 7 per cent. or over—concrete or class "B" Hassam.

For streets with grades so steep that a smooth pavement will not permit of travel—45 per cent. of the roadway in the centre to be paved with brick or stone and the sides with some other paving suitable for locality. For streets with a 15 per cent. grade or over—no paving, only macadam and gutters to be laid in concrete.

It is believed that the plans proposed by Commissioner Dieck will be approved by property owners and that much of the confusion in selecting pavements and the solicitation of companies offering cheap pavements for heavy traffic will be eliminated. The policy has already been put into effect on a number of contracts, and it will be followed closely in all plans and specifications hereafter.

Record Paving Operations.

Syracuse, N. Y.—The present season will break paving records in this city, nearly twice the amount of pavements and resurfacing of any previous year being in progress. The year's addition to the paved streets will be 15 to 18 miles. Nearly 20 contracts have been finished, nine are well under way and before fall eleven contracts already awarded will be started and some ten or twelve let and commenced. One of the most important resurfacing jobs is in James street, where over a mile has been improved. The Warner-Quinnian Asphalt Company has begun laying asphalt between North Saline and North Warren streets. Two large contracts are under way: Emerson avenue and Milton avenue pavement from Harbor street to the city line and South Beech street from East Water street to Westcott street, about a mile of macadam.

Thirty Miles of Road in One Day.

Fort Smith, Ark.—Thirty-eight miles of road have been built in the state by the one-day method, 2,500 men and 500 teams of mules being employed. Morrillton and Martinville, Conway county, built 26 miles with 1,500 men and 350 teams. Brinkley and Wheatley constructed 6 miles in eight hours and a 150-foot timber bridge in four hours. Ashdown and Richmond built 6 miles of road connecting these cities. All workers donated their services free except crews in charge of the traction engines, who were paid by the county. The remaining expenses were paid by voluntary contributions.

Large Estimates for Oakland's Streets.

Oakland, Cal.—The sum of \$854,743.97 will be required to conduct the street department during the present fiscal year, according to the estimate submitted to the council by Commissioner of Streets William J. Baccus. The sum asked for is apportioned as follows:

Department of Streets.....	\$512,553.97
Bureau of Engineering.....	66,350.00
Public Betterments	220,400.00
Municipal Garage	16,685.00
Garbage Disposal	39,755.00

An increase of \$24,500 over the cost last year for the sweeping of streets by machinery is due to increased yardage and increased traffic. The \$3,500 more than last year's amount spent for replacing wooden culverts by corrugated iron culverts is a matter of economy, as the cost of maintaining the former is very great. An increase of \$4,000 for oiling old macadam streets will, it is estimated, save from \$50,000 to \$60,000 in sprinkling. The 85 laborers who clean and repair over 500 miles of streets cannot give them all the attention they should, and as it is also desired that the department assume the care of the weeds on the sidewalk area an increase of \$20,000 will be necessitated. The municipal garage will provide for 25 automobiles, each costing \$250 for maintenance. The sum of \$2,500 is requested for garbage investigation and report on the advisability of building a garbage incinerator.

Automobile Oil Injures Streets.

San Francisco, Cal.—The Board of Public Works has requested the Police Department to enforce the 1904 ordinance prohibiting the dripping of oil from automobiles on streets. There have been frequent accidents from slipping horses and the dangerous condition of the streets was found to be due to automobile oil.

SEWERAGE AND SANITATION

\$2,000,000 Taxation for a Five-Mile Sewer.

St. Louis, Mo.—By a decision of the Board of Public Improvements announced by Sewer Commissioner Charles A. Moreno and approved by Mayor Henry W. Kiel, special taxes totaling \$2,000,000 will be assessed against property owners in the district surrounding Mill Creek Valley for building a new relief sewer through the valley from Vandeventer avenue to empty into the river at the foot of Convent street. It is estimated that the burden will fall on 100,000 property owners and objections are expected. It was first proposed to construct the sewer with a bond issue but it was decided that such a plan would consume three or four years, and the situation is too serious as the present sewer is considerably overloaded and extensive damage has been done by recent floods. The course and size will be practically the same as that of the present sewer, which is about five miles long. The two sewers will drain an area of 5,100 acres. The cost to property owners would be \$1 to \$1.25 per 100 square feet and as the average lot size is 30 ft. by 120 ft., the assessment per lot will be about \$45 or three annual installments of \$15.

Typhoid Near Water Supply.

Jersey City, N. J.—Within 15 feet of Ford's Pond, one of the feeders of the Rockaway River, from which this city draws its water supply, is a case of typhoid fever. Commissioner James J. Ferris has stationed several men at the place, and every scientific precaution has been taken to prevent a spread of the disease germs to the drinking water. The pond is about 500 feet wide and about 1,000

feet long, the water flowing into the river over a dam. Between the pond and the river there is a chlorine gas plant operated by the Jersey City Water Department. All the water from the pond to the river, it is said, must pass through the chlorine gas process.

Court Stops Pollution of Water.

Brooklyn, N. Y.—The danger of a new cemetery at Rockville Centre, near the source of the Brooklyn water supply, has been averted by the decision of the Appellate Division of the Supreme Court. The proposition to make a new cemetery within half a mile of the so-called "Smith's Pond," which formed one of the principal sources of the water supply, was fought vigorously by the City of New York and by the Merchants' Association Water Pollution Committee.

WATER SUPPLY

Utility Board Orders Water Company Improvements.

Butler, N. J.—The State Board of Public Utility Commissioners have investigated the charges of the citizens of this borough and have made several important decisions and orders. In its complaint the borough of Butler charged the company with exacting exorbitant rates, particularly with reference to sprinkling; unreasonable charges for tapping mains; insufficient water pressure; improper rules and regulations and a general inadequacy of water supply. After several hearings, a physical valuation of the company's plant and a personal inspection of the situation, the commission ordered improved and safer service by doubling the water supply and storage capacity, installation of meters for other than domestic use, halving the rate for sprinkling and a severe cutting down of the meter rates.

Dallas Filtration Plant Almost Completed.

Dallas, Tex.—David Morey is to be chemist and superintendent of operation for the city filtration plant at the Turtle Creek pumping station of the water works system. He has been in charge of the work of construction and installation of the plant under the plans of Hydraulic Engineer J. H. Fuertes. Mayor Holland and Water Commissioner Nelms have visited the plant and looked over the work. The filter house is nearly done, most of the filter machinery is in place and the filter beds, with a capacity of 20,000,000 gallons a day, and planned for indefinite unit extension, are almost ready. The chemical laboratories and mains for chemicals for their carriage to the settling basin are nearly complete. 175 men are at work, and the plant will be finished in about a week.

City Water Plant Pays.

Raleigh, N. C.—The Commissioners find that the revenue from the city water works will easily pay all running expenses, pay the interest on bonded indebtedness and provide ample sinking fund for paying off the bonds. The city expects soon to install a system of meters for all users, at present scarcely one-fourth having them, the service being on a flat rate.

Dynamites City Water Main.

Kansas City, Kan.—An attempt has been made to blow up with dynamite the main flow line that carries the water supply of this city from the Quindaro pumping station, which, if successful, would have cut the city off from water and left it at the mercy of fire. The flow line lies across property claimed by Mrs. Katherine Burke, who insists that the city is trespassing. She has placed barricades across the road and has resorted to gun defense. Dynamite was placed three feet from the line and on explosion a large hole was torn in the ground, but the 24-inch main was unharmed.

Reservoir Nearly Completed.

Gilroy, Cal.—The new reservoir is rapidly nearing completion, the laying of the outlet pipes having been finished and the replacing of the dirt in the cut in the dam being now in progress. When this is accomplished, the cement floor and walls will be hurried to allow of the quick finish of the whole work. The work of the contractor, William Ratke, will doubtless be approved by Inspector Con Wicker. The reservoir will contain 9,000,000 gallons and will be one of the finest in the state.

City Increases Water Works Company Taxes.

Birmingham, Ala.—As a result of the agreement reached between this city and the Birmingham Water Works Company, the former will receive in intangible taxes \$50,000 more from the company this year than last. The agreement was reached before the State Tax Commission, which was represented by the president, J. Lee Long and Judge A. A. Evans. The city was represented by Attorney Romaine Boyd, Comptroller Charles H. Abbott and Engineer Walter Kilpatrick, while the interests of the company were in the hands of Vice-President D. J. O'Connell, Superintendent J. Horner and Walter Percy, attorney. It is understood, however, that the city is not satisfied, and this fall will actively agitate the question of the taxation of intangible properties of corporations.

City Water Saves \$163,465 a Year.

Long Island City, N. Y.—Due to the new connection between the Brooklyn and Queens water supply systems the average daily amount now supplied to this city, all of which was formerly supplied by the Citizens Water Company, is 6,890,000 gallons. This quantity, which had been sold at the rate of \$65 per million gallons by the company, now saves the city \$477.85 per day. The water is abundant, assured and fine, having no tendency to boiler-scaling. The Citizens Company still furnishes 2,647,000 gallons per day.

Municipal Water Works Victory After Twenty Years.

Des Moines, Ia.—Following a conference between Mayor James R. Hanna and H. W. Byers, representing the city, and H. J. Parrish, attorney, C. S. Denman, general manager, and C. H. Payson, president of the Des Moines Water Company, a twenty-year fight for municipal ownership of the water works plant is ended. The company agrees to sell the plant to the city for \$2,302,522.

STREET LIGHTING AND POWER

City Fights for Lighting Plant.

Camden, N. J.—The Camden council, backed by a vote of the people seven years ago, are trying to pass an ordinance to expend \$540,000 for a municipal lighting plant against the tenacious opposition of the Public Service and the Board of Trade. Harry H. Avis, Frank Richmond, Leo Harkins, Colonel H. L. Hartshorn and H. W. Watkins for the council hold that the vote of the people in favor of the plan is mandatory and that the installation of the plant would be beneficial to the community in the way of reduced rates and increased consumption. Charles S. Boyer and Charles M. Curry for the Board of Trade contend that the seven-year old vote does not hold good and that the city could not sell enough current to cover the engineers' estimates, and that it is not an opportune time for selling bonds.

Electric Cable Conduit Under Creek.

Boston, Mass.—The Edison Electric Illuminating Company has installed half of a mammoth conduit, which, when completed, will connect East Boston and Chelsea, and, with power from the L street power house, "feed" the whole of Chelsea. The half already installed weighs 30 tons, and is 220 feet in length and extends from the East Boston side of the Meridian street bridge and beneath the Chelsea Creek to a cable house on a pier extending from the center of the bridge. The top of the conduit is protected by solid concrete caps. The total cost of construction will be about \$30,000.

Demand Lower Light Rate.

Puyallup, Wash.—The Council has instructed City Attorney M. F. Porter to appeal to the state public service commission to secure a lower domestic light rate for the city from the Puget Sound Traction, Light & Power Company.

Municipal Light Defeated.

Joplin, Mo.—At an election held recently the proposition to issue \$75,000 in bonds for extensions and improvements to the municipal electric light plant was defeated. This is the third time since April 22 that a proposition to enlarge the plant has been defeated.

FIRE AND POLICE

Firemen's Pay Investigation.

Oklahoma City, Okla.—The efficiency committee and the city commissioners have inspected the accounts of the fire department in this city and in other cities of about the same size: Fort Worth, Houston, San Antonio, Kansas City, Kan., St. Joseph, Mo., and Fort Wayne, Ind. In this city, in 1909-1910, the cost of maintaining the fire department was \$42,000; in 1910-1911 \$95,000; this year the budget calls for \$119,000, but the committee contends that the gross expense should not exceed \$80,000. The average pay of firemen in the other cities was found to be \$79.38. The commissioners proposed to reduce the pay here from \$85 to \$80, but the committee stated that it did not suggest salary reduction—only that the commissioners find some means of reducing the expenses.

Examination for Policewoman.

Rochester, N. Y.—The Municipal Civil Service Commission has fixed September 10 as the date for the examination for policewoman. All candidates must be between 30 and 45 years of age. They must submit to a rigid physical examination which will count 40 per cent. The applicants must be citizens of the United States and residents of Rochester for at least two years, and must not have been connected in any way with the sale of liquor for the last two years. For experience, a statement of which must be submitted in person, 60 per cent. will be allowed. Only one policewoman will be appointed and the salary will probably be the same as that of a policeman, \$60 a month at first, \$70 a month after six months and \$85 a month when the first grade is reached after a year of service. Commissioner of Public Safety Charles S. Owen and Chief of Police Joseph M. Quigley will act in an advisory capacity in the appointing, but the marks will be made by the commission.

MOTOR VEHICLES

Garbage Truck Gives Good Service.

Baltimore, Md.—The new seven and a half ton auto garbage truck, which cost the city \$5,043, is being worked by Commissioner Larkins with great practical effect. During four days of the week, the truck collects garbage from 26 garbage carts which meet the truck at a regular garbage station. This collected garbage is carried by the auto truck to the scows at the water front, thus saving an average drive of three miles for each of said teams. This means a tremendous relief to the 26 horses which, even under the best conditions, are subjected to hard, straining work. During the other two days of the week, the truck takes the place of the two double wagons which formerly collected the garbage from hotels. On Saturday nights, the truck hauls refuse from the markets to the scows. This latter function of the truck is equivalent to the work of 14 carts doing a half day's work for each team. It can be seen, then, that Commissioner Larkins is not only making the truck a great saver of valuable horse flesh; but, by his operations of the truck, he is adding largely to the efficiency of his department.

New Motor Fire Apparatus for Haverhill.

Haverhill, Mass.—Fire Chief John B. Gordon and Dudley Hilliard, automobile expert, have returned from Columbus, O., very enthusiastic after an examination of this city's new fire department automobile equipment being built in the plant of the Seagraves Company. The company had asked the officials to come and inspect the machines before the finishing touches were put on. The chief and the expert made some suggestions for changes and it is expected that the new apparatus will be delivered early in September. With the addition of this truck and combination, the city will have five auto machines in commission costing approximately \$35,000. The speed of the department has been greatly improved and a great saving affected since the installation of automobile apparatus.

GOVERNMENT AND FINANCE

St. Augustine Budget.

St. Augustine, Fla.—Chairman John B. Floyd of the finance committee has submitted to the City Council the budget for the fiscal year from October 1, 1913, to September 30, 1914. The tax levy for municipal purposes is reduced from 40 mills to 30, and the cost of operating the city during the year is estimated at \$82,344. This is apportioned to the various plants as follows:

Ordinary (Corporation) Fund.	
One per cent. on assessment roll of \$2,002,488.....	\$20,248
Licenses and leases	11,000
Court fines and pound fees.....	2,500
Interest on bank balances.....	600
	<hr/>
	\$34,348

Permanent Improvement Fund.

One per cent. on \$2,002,488.....	\$20,248
Paving collections	7,500
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Water Works Fund.

One-half per cent. on \$2,002,488.....	\$10,124
Interest and sinking fund, one-half per cent. water works extension	10,124
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Apportioned as follows:

Water Works.	
Hydrant rental	\$5,500
Coupon account	3,750
Sinking fund	3,000
Water works extension.....	7,998
	<hr/>
	\$20,248

Ordinary.

Lighting for the year.....	\$8,700
Rent of city building.....	2,100
Salaries of officers.....	4,800
Printing and office expenses	600
Police department	5,700
Fire department	4,500
Elections	200
Poor fund	1,500
Sanitary	6,248
	<hr/>
	\$34,348

New Charter for Cincinnati.

Cincinnati, O.—The 50,000 voters have, by a majority of 90, voted in favor of the new charter and arrangements for the organization of the new charter commission are being made. The proposition to have a small council of ten men elected at large was defeated by 5,000 votes.

Beaver Falls a Third Class City.

Beaver Falls, Pa.—With about two-thirds of the registered vote this city voted in favor of the change from the borough form of government to that of a third-class city. Four of the six wards were in favor of the change, many voters claiming that the borough was being mismanaged and that no improvements were being made by the 18 councilmen.

City Bond Sale Successful.

Utica, N. Y.—The popular sale of \$90,000 worth of city bonds has been a success. The bonds bear 4½ per cent. interest and when they were offered for sale on July 17, there were no bidders. The comptroller, on offering to sell them in small lots to investors at home, received more than 70 bids, and the issue is oversubscribed at par. It will be divided between the small bidders.

Test Validity of Old Bonds.

Portland, Ore.—Bids for \$50,000 worth of the long-time 4 per cent city water bonds issued under the provision of the old city charter, now standing as a city ordinance, have been invited. The step is taken to test the right of the city commission to sell the old city bonds.

Offer Ideal Government to Spokane.

Spokane, Wash.—In a platform embracing 28 distinct planks a municipal party of this city denounces the present administration as incompetent and ruled by privileged interests, and offers and pledges itself to carry out numerous beneficial municipal undertakings. It declares itself for unrestricted ballot, free speech, free press and free assembly. It demands the collective ownership of all public utilities, the construction of all municipal improvements at actual cost by the abolition of the contract system on all municipal work and the abolition of all private employment agencies. It asks for the establishment of the following municipally owned and controlled public welfare institutions: Electric power plant, centrally located public market, abattoir, new drinking fountains, more fountains for animals, ice plant and a lodging house with free laundry for the homeless and unfortunate. It stands for the reduction of water rates to actual cost of maintaining and extending system, free and compulsory installation of water meters, free municipal hospitals and medical dispensaries, free municipal crematory service, free municipal cemetery, free municipal baths and a universal transfer system of street cars. In municipal government it desires the abolition of the park board, the abolition of present non-partisan elections and the voting system which requires every voter to cast a ballot for more than one candidate. This is the program of the Socialist Party in this city and illustrates very well the demands and applications of Socialist principles to city administration.

\$3,600,000 Budget and a Tax Drop.

Jersey City, N. J.—The Board of Commissioners, Fagan, Ferris, Brensinger, Hague and Moore, have determined the city's budget for the fiscal year beginning Dec. 1 next. In spite of the fact that under the new form of government the estimate of the cost of administration of the city's affairs will be \$3,633,357.93—a \$60,000 increase over last year's—Commissioner Brensinger, in whose department the work of assessing property valuations is being carried on, assures the citizens that the tax rate will be reduced. Last year's budget was \$3,572,550.69, an increase of \$404,461.73 over the previous year's and the commissioners feel therefore that their increase is an indication of economy. The greater part of the increase is due to the larger amount required by the Board of Education caused by what the Commissioners consider unwarranted increase in salaries. The appropriations are apportioned as follows:

Department of Public Affairs.....	\$226,160.84
Department of Revenue and Finance.....	817,656.10
Department of Streets and Public Improvements.....	485,088.90
Department of Public Safety.....	1,224,447.06
Department of Parks and Public Property.....	207,880.82
Board of Education.....	530,435.17
Law Department	17,216.00
City Clerk's Office.....	29,896.80
 Total estimated expenses.....	\$3,541,481.69
Special receipts (estimated to be deducted).....	271,459.56
 Add one-ninth, amount required by "An Act concerning cities of this State, approved March 27, 1884".....	363,335.80
 Net total to be raised by taxation in Jersey City for all purposes during the ensuing fiscal year.....	\$3,633,357.93

Urge City Efficiency Bureau.

Los Angeles, Cal.—Included in the final report of the budget committee of the city council is a strong recommendation for the establishment of a municipal efficiency bureau to promote efficiency and economy in all the city government departments. Appended to the report is a statement from the Municipal League outlining a comprehensive plan for the establishment of such a bureau. To carry out the plan the budget committee has made an allowance of \$15,000. Charles H. Langmuir, chairman of the efficiency committee of the league, believes that \$141,000 a year can be saved by the bureau if the unit cost per customer of the private concern is attained. Existing conditions in the city, according to the league committee report, disclose many wasteful business methods and surprising discrepancies in salaries. As an example, it is pointed out that twenty-three detectives receive \$150 a month each while the head of the department, with supervision over forty-five men and expending \$1,000,000 a year,

receives only the same salary. As reforms, some principles adopted by the city of Chicago are recommended; all employees performing like duties to be paid similar salaries; a sufficient number of grades to be provided to insure frequent promotions as a stimulant to high effort; no salaries to be changed except by promotion from the grade below unless the salaries of the entire grade be changed. With the standardization of salaries, service pensions and disability protection are urged. Other suggestions are the institution of a high school course in public service; the establishment of an order of distinguished service; a central collection bureau for the collection of licenses and permits, and a citizen board of assessors for evaluation of city blocks. The head of the efficiency bureau is to be paid a good salary and an efficiency committee consisting of the chairman of the efficiency and supply committee of the council, the auditor and the president of the civil service commission.

A Single Tax City.

Calgary, Alta.—Land values in this city have advanced more than \$18,000,000 since the last assessment in 1912, according to the report just issued by the assessor, Richard Wallace. This is a tremendous increase and it is significant that Calgary's revenue is now very close to a single tax basis. Some time ago it was decided to put the principle of the single tax into effect here and, as a result, owners of buildings only pay taxes on 25 per cent. of their assessed value and not on the total. The total assessment for the land and buildings is \$149,973,918. Of this amount \$120,801,558 is represented by land which last year was valued at \$102,260,915. The balance of the total, \$29,172,360, represents buildings. The total assessment for taxable purposes this year will be \$128,094,648 made up:

Land	\$120,801,558
Buildings (one-fourth assessed value)	7,293,090

STREET CLEANING AND REFUSE DISPOSAL**Change Disposal Plant into Incinerator.**

El Paso, Tex.—As a result of the inspection and recommendations of Alderman W. S. Clayton and Consulting Engineer W. H. Todd and the report of the Power Specialty Company, of New York, the city disposal plant, which cost \$100,000 and which has been declared a failure, will be remodelled into a garbage incinerator at a cost of about \$60,000. It is recommended that a Heenan refuse destructor be installed and the tank changed to an Emscher or an Imhoff tank.

RAPID TRANSIT**Philadelphia's Huge Rapid Transit Plans.**

Philadelphia, Pa.—Real rapid transit for every section of the city by 1918 at a cost of nearly \$60,000,000, is recommended in the report of City Transit Director A. Merritt Taylor. Now that Governor Tener has signed all of the bills which give Philadelphia the right to raise money for the construction of subways, Mr. Taylor offers his plans upon which he has been working for the past eighteen months. Summarized, his proposals are: A subway delivery loop running around Walnut, Arch, Eighth and Fifteenth streets. A subway from Broad and Arch streets to Broad and Pike streets, with an elevated spur northwardly to Olney avenue and another elevated spur along the Northeast Boulevard to Rising Sun avenue. A subway from Broad and Walnut streets to League Island. An elevated road, connecting with the present Market street elevated at Front and Arch streets and extending to An elevated road, connecting with the present Market street elevated at Front and Arch streets and extending to Frankford. Many surface lines, connecting with and transferring to the proposed subways and elevated roads. The North Broad street subway to be four-tracked to Erie avenue, and that all the other lines be two-tracked, including the delivery loop. According to the plans, the North and South Broad street subways and the connecting loop are

to be built by the city and leased to the Philadelphia Rapid Transit Company. The Frankford and Darby elevated lines are to be built by the Rapid Transit Company, as well as any connecting surface lines. The total cost, including everything, is estimated at \$57,578,000, of which the city must spend \$34,682,000 for the subways and the company \$22,896,000 for its work. It is recommended that the subways transfer to one another without payment of additional fare and that liberal transfer privileges be extended from the subways and elevated lines to surface lines acting as feeders. Work should begin at once, agreements, contracts and arrangements with the Rapid Transit Company should be undertaken by the City Council, the loans floated, plans completed and contracts awarded so that construction should begin in November, 1914. The director recommends that all the improvements be made as a unit and the plan be worked out in its entirety. Director Taylor has worked out in exceedingly careful detail the financial questions involved. Until 1918, the city will have spent \$35,376,000, and will not have received any direct return, sinking fund charges and interests having to be paid meanwhile, probably from the city's current revenue. The income to the city will begin in 1919, but in no year

about \$1,000,000 per mile, a mile of elevated will cost only \$400,000. Considering the less comfortable travel of subways and the elimination of objections to elevated structures by modern design, the director recommends the free use of elevated roads outside of central business districts rather than subways.

City Wins Against Street Railway Company.

Detroit, Mich.—The threatened trouble between the city and the Detroit United Street Railways Company, caused by the refusal of the company to grant three-cent fares on all city lines where franchises have expired, was averted by a temporary agreement by which the company grants nearly all of the important demands of the city. In return for numerous concessions made by the company, the street railway commission promised neither to enforce a three-cent rate nor to instruct the city treasurer to seize street railway property as payment for such taxes. The company agreed to grant seven tickets for twenty-five cents on all its lines within the one-fare zone at all times. The workingmen's rate of eight tickets for twenty-five cents during certain hours is not to be affected. Universal transfers will also be given.

Town to Drive Out Trolley Company.

Clifton Heights, Pa.—Charging that the operation of the Delaware County & Philadelphia Electric Railway Company, running from Angora to Media through this borough, is a menace to public safety, council has adopted a resolution that the borough revoke the company's franchise. In making the motion, Councilman James Haynes bitterly denounced the service of the company and the perilous condition of the roadbed and the 20-year old rails, which has caused innumerable cars to leave the rails, endangering life and property. On these charges Frank B. Rhodes, Borough Solicitor, was instructed to take action against the company, which is at present being operated by the Southern Pennsylvania Traction Company.

A Paying Municipal Street Railway.

Calgary, Alta.—Despite the fact that a large number of outlying feeder lines have been constructed during the past year, tending to reduce the profits per passenger carried, the net earnings of the Calgary Municipal Railway system for the month of June were \$12,136.52. The gross earnings were \$69,967.85 compared with those of the corresponding month last year, \$54,908.03. Wages of motormen and conductors for the month were nearly \$20,000, while in 1912 they were \$13,000. This increase is due to the employment of more men necessitated by the extension of the system and by the recent increase in wages, which makes the employees of this railway the highest paid of any city traction system, public or private, in America.

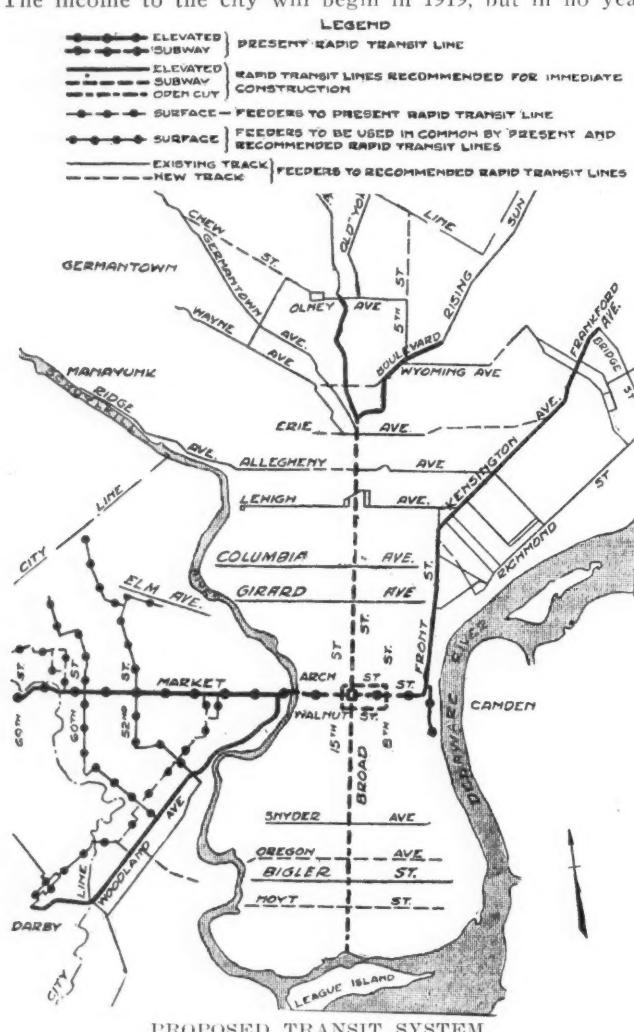
MISCELLANEOUS

Prize Contest for a City Slogan.

Perth Amboy, N. J.—Following the example of Elizabeth, N. J., "the Rail and Harbor City"; Newark, N. J., with its "Newark Knows How"; Allentown, Pa., crying "Dwell Here and Prosper"; Easton, Pa., the "City of Resources," and many other cities, Perth Amboy's Board of Trade is going to offer a prize for a slogan to rally people to its unrivalled merits. The Board of Trade has also appointed a committee consisting of F. G. Fraser, D. P. Olmstead and O.W. Ramsay to begin an advertising campaign for the city starting with distribution of attractive matter to automobileists passing near here.

Lower Car Steps Demanded by Women.

Jersey City, N. J.—The women's clubs of Hudson County have demanded that the steps and platforms of the trolley cars here be lowered to an average height of fifteen inches. Officials of the Public Service Railway Company have given testimony before the Public Utility Commission to show the big expense that will be entailed to carry out this demand. H. A. Benedict, expert in the construction of trolleys, employed by the Public Service Corporation, produced statistics estimating the total expense of lowering the steps of the 1,621 trolley cars in Hudson County at almost \$500,000.



will the amount returning to the city be as much as the interest and sinking fund charges for that year. However, the director shows that by 1930 the city will receive from relinquished state taxation, the sum of \$11,220,000; and that due to increase in values taxable property caused by better rapid transit facilities, the city will receive \$3,000,000 every year. The addition, should the constitutional amendment to the bond issue regulations be effected, changing the present 30-year period to 50 years, it is shown that by 1927 the city's direct income from the lease would be in excess of fixed charges, and from then on the city would be paying off its debt and would be getting a profit every year in addition. In a detailed discussion of the engineering features of the plan, Mr. Taylor points out that while a subway line without equipment, will average

Cities for Municipal Ice.

Bridgeport, Conn.—The committee on municipal ice, reporting favorably on the proposition, recommend the installation and equipment of an ice plant with a minimum daily capacity of 100 tons and a cold storage plant of 300,000 cubic feet, to be built in the city yards on Housatonic avenue, at a cost covered by an appropriation of \$150,000. The report of the committee was accepted by Mayor Wilson and turned over to the city attorney to be decided upon as to legality.

New London, Conn.—Mayor Mahan has announced that, under the authority conferred upon the city at the last session of the general assembly, he will ask for an appropriation for the erection of a municipal ice plant. The city intends to do business on a large scale, not for profit, but for enabling those of limited means to obtain ice at cost. Under the amendment to the city charter, the city also has the right of purchasing ice in large quantities from any other source and selling it at cost for the benefit of the community.

Hartford, Conn.—The city intends to take up the project of harvesting ice from the unused reservoirs when the Nepaug supply is available. There is a charter amendment allowing the city to sell ice from the reservoirs under the direction of the water board.

Fall River, Mass.—The special aldermanic committee investigating the local ice situation charges the Board of Health with gross negligence because of failure to investigate the sources of ice supply and also to make proper inspection of ice delivered, according to the provisions of the city charter. As a result of deliberations, the committee practically agrees that a combination exists here and that active steps should be taken immediately to investigate, with a view to turning the evidence over to the Attorney General. Notwithstanding the demands made by representatives of the various ice concerns, the committee feels that abnormal profits have been cleared here this season and plans are now under consideration whereby special legislation will be asked to permit of the establishment of a municipal plant here.

Waterbury, Conn.—Unable to do anything to make the ice corporation lower its prices, President Walsh of the Board of Aldermen will appoint a committee to consider the establishment of a municipal ice plant. The plan of City Engineer Robert A. Cairns, who suggested using the ice on the East Mountain reservoir and establishing ice stations in various parts of the city, will probably be followed.

Shreveport, La.—A grand jury and official attorneys are investigating the alleged combination of local ice companies to elevate prices. Meanwhile the citizens are vigorously complaining of conditions, the Carpenters' Union having presented resolutions to Mayor Eastham asking for a municipal ice plant, and this action will probably be repeated by other unions. No official action has yet been taken.

Successful Municipal Nursery for Street Trees.

Pasadena, Cal.—Of the 26,400 street trees owned by the city, a large number were raised in the municipal nursery, which, under the direction of Jacob Albrecht, superintendent of parks and street trees, has become one of the best in the country. In addition, 14,000 trees are now in the nursery, ready for next seasons' planting, embracing about twenty different varieties, and there are also 10,000 seedlings in various stages of development. Since 1908, when the city took over the planting of street trees, nearly 11,000 trees have been planted, of which about two-thirds are municipal nursery raised. The principal varieties are acacias, Washingtonia robusta, camphors, peppers, sterculias and oaks.

City's Anti-Tipping Ordinance.

St. Louis, Mo.—The City Council has passed a bill making it a misdemeanor to give or receive a tip in a hotel or restaurant. A fine of \$10 to \$50 may be levied for each offense, half the fine going to the police informant of violation of the ordinance. The measure was carried without opposition following a public hearing in which several waiters attributed the local hotel employees' strike to low wages resulting from the tipping practice.

Want Seattle to Pay Riot Damages.

Seattle, Wash.—As an aftermath to the soldiers' and sailors' riotous onslaught on the Socialists and the I. W. W., Mayor Cotterill has filed with the clerk a statement of the claims for damages done to the headquarters of the radicals. The business men of the city wish to let the matter drop, but the Socialists demand an investigation and the enemies of the mayor are urging that a recall be started against him for the failure of the police to suppress the riots and his action in placing the city under riot law. Holding, with the chief of police, that it was better to avoid bloodshed than to prevent the destruction of property, and that the meeting places of the people must be protected as much as a department store, bank or library, the mayor says that the city is responsible for the losses incurred. The fact that the destroying agents were United States soldiers and sailors carrying the stars and stripes, he holds, has nothing to do with the matter. The losses suffered by the Socialist party locals amount to \$3,047, while those of the I. W. W. total \$1,639.50.

Schenectady Forced Out of Ice Business.

Schenectady, N. Y.—Mayor Lunn, Comptroller John L. Meyers, Treasurer Philip T. Andres, Commissioner of Public Works Charles A. Mullen and Superintendent of Water Fred W. Bentley are permanently restrained from any act that may be construed as entering into the business of selling ice, by a decision of Justice Kellogg of the Supreme Court, granting an injunction to David V. Maxwell, plaintiff. Only recently the Socialist administration was restrained from selling groceries in an attempt to reduce the high cost of living in the city.

Mayor Vetoes Municipal Ice Plant Scheme.

New York City, N. Y.—Mayor Gaynor has vetoed the aldermanic resolution providing \$32,000 for the municipal ice plant scheme of Borough President McAneny. The Mayor thinks that the money could be more profitably spent in road-repairing and that caution must be exercised to keep expenditures below the constitutional limit of 10 per cent. of the real estate values of the city. He charges the scheme with being a political game and vote-catcher.

City Planning Commission for Bridgeport.

Bridgeport, Conn.—Alderman Paul L. Miller, following a detailed proposal by Mayor Wilson, has introduced a resolution before the Board of Aldermen asking for the appointment of a City Planning Commission. This is to consist of eight citizens, including the presidents of the Board of Trade, the Manufacturers' Association and the Business Men's Association, the mayor of the city to act as an ex-officio member. The commission is to be appointed by the mayor and its members are to serve without compensation. The duties of the commission are to include control of traffic, streets, docks, transportation, freight facilities, trolley lines, parks and housing plans. The commission is to plan ahead to facilitate and foster the future growth of the city and to strive after more comfortable housing, more efficient transportation, and more beautiful surroundings. No opposition is expected to the adoption of the resolution.

A Complete Testing Department.

Long Island City, N. Y.—Apparatus and materials are being received and installed in the Borough Hall of Queens for a testing department to be operated in connection with the highway, sewer and other departments of the borough. P. M. Travis has charge of the new department and about September 1 he will begin testing all materials before they are used. Besides the testing of materials there will be a bacteriological department for examining the water supply and the sewage.

Seventh Market for Los Angeles.

Los Angeles, Cal.—The seventh curb market in this city has been opened at 48th street and Vermont avenue. The residents of this section were so anxious for the establishment of a market that they offered to pay half the rental until such time as the market became self-supporting. All the other six municipal markets are doing a flourishing business and, at low prices and steady demand, are selling out by 12 o'clock in the morning.

Municipalities to Have Central Library and Bureau.

Walla Walla, Wash.—Through the League of Pacific Northwest Municipalities, the people of the four states in the league are now afforded the services of an extensive reference library and bureau of information at the league headquarters in this city. The municipalities concerned will have the benefit of Whitman College, which is a depository of government documents and has a well-equipped municipal legislative and reference department, making it possible to offer extraordinary facilities to city officials desiring aid. By an arrangement with the League of California Municipalities the city will have the use of the splendid collection of city ordinances kept on file at the headquarters of this league at Pacific Building, San Francisco.

A Beggarless City.

Minneapolis, Minn.—Mayor Wallace G. Nye's plan to transform the police force of this city into temporary employment agents has proved an unqualified success. Last week when the plan went into effect, there were more than 1,000 idle men loitering about the streets, the authorities declared. Now Chief of Police Martinson estimates that there are less than 100 who have not either obtained employment or fled the city to escape a term in the workhouse.

Only Citizens May Work on City Jobs.

Bisbee, Ariz.—All work on the excavation for the paving of Subway street came to a sudden halt when the law prohibiting any but citizens to work on city jobs was called into effect. The contractors, Bane & Tarrant, stated that they had expressly asked each Mexican when he was taken on whether he was a citizen, and that in each case they had replied that they were. The work was shut down following an investigation by Senator Sims.

Mayor Disapproves Ball and Chain.

St. Louis, Mo.—A bill has been presented and referred to the ordinance committee of the City Council to legalize the working on the streets, and under police guard, of city prisoners unable to pay their fines. The bill prescribes 50 cents a day be applied on the fine for every day's work and for the use of the ball and chain on mutinous prisoners. Mayor Chamberlin points out that the state law allows prisoners \$2 a day, and says that less would therefore be illegal. He disapproves of the use of the ball and chain which, he says, would subject prisoners to the humiliation of public staring.

Postcards to Advertise City.

Richmond, Va.—In preparation for the coming conventions in this city, the Richmond Rotary Club and the Chamber of Commerce have combined to issue a very handsome advertisement of Richmond's beauty and industrial progress in the shape of a booklet containing a score of colored postcard illustrations of public buildings and monuments with several pages of data regarding Richmond's resources and advantages. These will be distributed to convention visitors. The most interesting figures used reveal the fact that the city's liabilities are only \$12,349,458 while its assets are \$22,135,845.

LEGAL NEWS**A Summary and Notes of Recent Decisions—
Rulings of Interest to Municipalities****Defective Streets—Cellar Door.**

City of Louisville v. Hayden.—A city, though required to keep its streets reasonably safe for ordinary purposes of travel, need not keep a cellar door, extending from a building out on the sidewalk, safe for persons standing on the door, though within the street line, and watching religious services in the building. A church maintaining for religious purposes a building situated back about three feet from the street line, with a cellar door extending from the building out on the sidewalk, is not liable for injuries to persons standing on the cellar door to watch services in the building.—Court of Appeals of Kentucky, 157 S. W. R., 5.

Regulation of Plumbing Business—License.

City of Houston v. Richter et al.—An ordinance of a city, which requires journeymen plumbers to be examined and licensed by the examining board of plumbers to obtain a city license, and to give a bond as a prerequisite to their exercising their business in the city, conflicts with Acts 25th Leg., as amended by Acts 31st Leg., providing for the examination and licensing by a board of examiners of plumbers, and is invalid though the city may under its charter enact ordinances to protect the health, life and property, and to preserve and enforce good government, order and security of its inhabitants and to exercise all powers of municipal government not prohibited by the charter, a provision of which declares that no ordinance inconsistent with the laws of the state shall be enacted; a "license" being a formal permission from the proper authorities to perform certain acts, or to carry on a certain business which, without such permission, will be illegal.—Court of Civil Appeals of Texas, 157 S. W. R., 157.

Taxation—Corporate Franchise.

Louisville & N. R. Co. et al. v. City of Henderson.—Under Kentucky statute providing that corporations in addition to other taxes shall pay a franchise tax, the entire property, real and personal, tangible and intangible, all assets on hand as well as its franchise, are to be valued as an entirety, and the tangible property already assessed is to be deducted therefrom, and hence the tax is nothing more than a tax on the intangible property of the company.—Court of Appeals of Kentucky, 157 S. W. R. 1105.

Accident—Catchbasin—Liability.

Nelson v. Kansas City.—Where the construction of a catchbasin and auxiliary depression in the line of the usual path of pedestrians was not pursuant to any legislative action or part of a general plan of street improvement adopted by the city, but the unusual location was selected by the city engineer, the city was liable for injuries to a pedestrian caused by the negligent construction of the basin and depression, for the act of the city engineer was ministerial.—Kansas City Court of Appeals, Missouri, 157 S. W. R., 94.

Nuisances—Hitching Racks.

Smith v. City of Jefferson et al.—Code requires cities to keep the streets open and free from nuisances, and a section declares that obstructions of streets shall constitute a nuisance. Held that, since the power to maintain and control streets in cities is delegated to the city councils thereof, the construction and maintenance of hitching posts in the streets at the instance of the council of a city did not constitute a nuisance.—Supreme Court of Iowa, 142 N. W. R., 220.

Sand and Gravel Defined.

Fellows v. Dorsey.—“Gravel” means small stones, or fragments of stone often intermixed with particles of sand, and “sand” is defined as fine particles of stone not reduced to dust; comminuted stone in the form of loose grains, which are not coherent when wet.—Kansas City Court of Appeals, Missouri, 157 S. W. R., 995.

Sewers—Assessments—Adjacent Property.

Dunker v. City of Des Moines et al.—Code, requiring the preliminary resolution of necessity for construction of a sewer to designate “what” adjacent property is proposed to be assessed therefor, is satisfied by the resolution providing for assessment of abutting and “adjacent property,” where the general sewer ordinance defines “adjacent property” as such property not abutting the sewer, and not otherwise assessed for its cost, as shall lie within 150 feet of it and can be connected with it and use it.—Supreme Court of Iowa, 142 N. W. R., 207.

Contracts—Extension of Time.

Paxton et al. v. Bonner et al.—A city council had power to extend the time for the completion of a contract for a public improvement beyond the period specified therefor in the original ordinance, where the extending ordinance was passed prior to the expiration of the time limited in the original ordinance.—Kansas City Court of Appeals, Missouri, 157 S. W. R., 996.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Good Roads Activities in the Northwest. By W. C. Tiffany. 22 pp., American Review of Reviews, August. 25 cts.

Road Congress, Third International. Account and abstracts. By E. L. Cortell. 2 pp., Engineering News, July 24. 15 cts. 15 p., Good Roads, August 2. 10 cts.

The Third International Road Congress. Account of meetings—list of delegates, etc. 3 pp., Contract Record, July 16. 10 cts.

Road Resolutions Adopted by the 1913 International Road Congress, London. 4½ pp., Canadian Engineer, July 17. 10 cts.

Third International Road Congress. Report of resolutions and abstracts. 2 p., Municipal Journal, July 17. 10 cts.

Legislation, Recent Highway in Arkansas, Maine, Minnesota and Missouri. 7 pp., Good Roads, July 5. 10 cts.

Surfaces, Suitable, for Various Kinds of Traffic. Paper by W. B. Sohier before American Road Builders' Association. 1¾ pp., Canadian Engineer, July 10. 10 cts.

Macadam Roads and Pavements, Some Notes on. Modern necessities for varied highway traffic—new destructive forces and agencies to meet them—paving materials and their characteristics. By F. L. Macpherson. 6 pp., Canadian Engineer, July 24. 10 cts.

Wear and Deterioration of Roadways. Observations noted since 1908 as to the various causes of. Paper by W. H. Connell and L. I. Hewes before International Road Congress. 3½ pp., Engineering and Contracting, July 16. 10 cts.

Road Wear, the Inter-Attrition Theory of. ½ p., Canadian Engineer, July 17. 10 cts.

Dust-Prevention and Road Preservation Experimental Work of U. S. Office of Public Roads. Supplementary reports. 5½ pp., Engineering and Contracting, July 23; 5 pp., July 30. 10 cts.

Maintenance, Factors in the Problem of Highway. Abstracts of U. S. Office of Public Roads Bulletin. By Dr. L. I. Hewes. 2 pp., Contract Record, July 30. 10 cts.

Highway Maintenance, Constituent Principles of. 1¾ pp., Engineering Record, July 19. 10 cts.

Penetration Method in Macadam Road Construction. Paper by W. W. Crosby before International Roads Congress. 2½ pp., Canadian Engineer, July 17. 10 cts.

Surface Treatment and Bituminous Macadam Construction with High Pressure Spraying Machine. Paper by T. Aitken before Third International Road Congress. 2 pp., Engineering and Contracting, July 23. 10 cts.

Asphalt Macadam in Nassau County, Resurfacing by Penetration. 1 p., Municipal Journal, July 17. 10 cts.

Bitumen and Sand, Wearing Surface of. 3 pp., Good Roads, Canada, July. 10 cts.

Modern Bituminous Roads and Pavements. Physical and chemical data, types and methods. By F. C. Ford. 6½ pp., Chemical Engineer, July. 25 cts.

Wearing Qualities of Road-Building Rocks, Relation Between Tests For. Paper by L. W. Page before American Society for Testing Materials. ¾ p., Rock Products, July 22. 10 cts. 1 p., Engineering Record, July 26. 10 cts.

Planning of Systems of Streets and Roads. Paper by N. P. Lewis before International Road Congress. 4¾ pp., Good Roads, July 5. 10 cts.

Concrete Pavement Construction. Technique and design. Morse-Warren Engineering Co. 6 pp., Municipal Engineering, July. 25 cts.

Reinforced Concrete Paving at Port Huron, Mich. By E. R. Whitmore. 2 pp., Engineering and Contracting, July 16. 10 cts.

Plain Concrete Paving Used in Kansas City, Mo., Construction, wear and utility. By C. R. Mandigo. 4 p., Engineering News, July 17. 15 cts.

Asphaltic Concrete as a Paving Material for Residence Streets, Suburban Districts and Boulevards. Paper by L. White before Civil Engineers' Society of St. Paul. 9½ pp., Journal, Association of Engineering Societies, June. 30 cts. 2½ pp., Engineering News, July 24. 15 cts.

Wood Pavements in the United States. Paper by G. W. Tillson before International Road Congress. 5½ pp., Good Roads, August 2. 10 cts.

Creosoted Wood Block. By E. A. James. 2½ pp., Good Roads, Canada, July. 10 cts.

Wood Block Pavements. Development in U. S. and specifications governing use. By G. W. Tillson. 5 pp., Canadian Engineer, July 24. 10 cts.

Brick Surface on Concrete Foundation for Roads. Paper by F. R. Lander before students of Ohio State University. 1½ pp., Contract Record, July 23. 10 cts.

Paving Blocks, Wire-Cut Lug. By F. B. Marsh. 1½ pp., Engineering Record, July 12. 10 cts.

Asphalt Plants, Municipal. Why some fail. By H. B. Pullar. 2 pp., Canadian Engineer, July 10. 10 cts.

Specifications for Asphalt and Other Paving Material. Kansas City testing laboratory. 9 pp., Bulletin No. 4, June 1. 15 cts.

Street Work in New Bedford. ¼ p., Municipal Journal, July 17. 10 cts.

SEWERAGE AND SANITATION.

Sewers, Methods Used in Constructing Pipe, in St. John, N. B. By D. J. Hauer. 3½ pp., Contractor, August 1. 20 cts.

Pipes in Ditches, Theory of Loads on. Theory and experimental data of various pipe materials and various ditch fillings. Reprint, Bulletin, Iowa State College Experimental Station. By A. Marston and A. D. Anderson. 8 pp., Engineering and Contracting, July 30. 10 cts.

Strength of Drain Tile and Sewer Pipe. 1½ pp., Engineering Record, July 12. 10 cts.

Construction of Tile Pipe Sewers in Chicago. By H. E. Hudson. 5 pp., Municipal Engineering, July. 25 cts.

Fitchburg Intercepting Sewer. 3 pp., Municipal Journal, July 24. 10 cts.

Pipe Joints, Tests of. Withstanding of lateral movement in joints. By A. J. Cleary. ¾ pp., Engineering Record, August 2. 10 cts.

Disposal, Sewage, at New Bedford. Mass. Intercepting sewer, screen and grit chambers and outfall sewer; sand washing and sewage disinfecting. By W. N. Charles. 4 pp., Engineering News, July 31. 15 cts.

Dilution, Permissible Units of Sewage, in Connection with "Clean Rivers." Paper by G. W. Fuller before Western Society of Engineers. 1½ pp., Engineering and Contracting, July 23. 10 cts.

Sanitary Conditions in Flooded Districts, Methods Employed in Re-establishing, at Zanesville and Columbus, O. 1½ pp., Engineering and Contracting, July 23. 10 cts.

Milk and Milk Products, Analysis of. Detailed methods used by Armour Institute of Technology. 2¼ pp., Chemical Engineer, July. 25 cts.

Milk-Borne Tuberculosis, with Special Reference to Impending Preventive Legislation. Paper by Sheridan Delepine before Paris Congress, Royal Institute of Public Health. 28 pp., Journal of State Medicine, June. 50 cts.

Bacteriological Department, City. Value for control and elimination of contagious diseases. By E. M. Duncan. 2½ pp., Municipal Journal, July 17. 10 cts.

Hot Weather Health Precautions. ¼ p., Municipal Journal, July 17. 10 cts.

WATER SUPPLY.

Water Supply of San Diego. By H. L. Worthen. 2 pp., Pacific Municipalities, July. 25 cts.

Progress on \$5,000,000 Water Supply System of Baltimore. 2 pp., Manufacturers' Record, July 24. 15 cts.

Water Supply at Mobile, Ala. By E. B. Kay. 1½ pp., Fire and Water Engineering, July 23. 10 cts.

Auxiliary Water Supply for the Fire Protection of San Francisco. Combination of cisterns and high-pressure pumping system—water from bay or reservoir. By A. J. Cleary. 3½ pp., Engineering Record, July 26. 10 cts.

Ground Water for Public Supplies, Quantitative Estimation of. Geological Investigation. Paper by M. E. Fuller before New England Water Works Association. 48½ pp., Journal, New England Water Works Association, June. \$1.00.

Yield of Limestone and Sandstone. Paper by M. E. Fuller before New England Water Works Association. 5 pp., Municipal Engineering, July. 25 cts.

Dams, Masonry; Experiments on Uplift Pressure. By C. R. Weidner. 3¼ pp., Engineering News, July 31. 15 cts.

Thermophones for Temperature Measurement in Dam. ¾ p., Engineering Record, August 2. 10 cts.

Reservoir, Reinforced Circular. Paper by A. Potter before American Water Works Association. 5¾ pp., Contract Record, July 16. 10 cts. 5½ pp., Canadian Engineer, July 17. 10 cts. 4¾ pp., Engineering and Contracting, July 16. 10 cts. 2½ pp., Fire and Water Engineering, August 6. 10 cts.

Reinforced-Concrete Double-Deck Water Tank. 2 pp., Engineering News, July 24. 15 cts.

Construction of the Kamloops Reservoir. By N. M. Hall. 3 pp., Contract Record, July 23. 10 cts.

Restoration of Water Sheds, Revenue from Hartford Water Works methods. Abstract of paper by E. W. Peck before American Water Works Association. ¾ p., Municipal Journal, July 17. 10 cts.

Aqueduct, Los Angeles, Antelope Valley Siphon. Four-mile concrete and steel pipe riveted under bonus system. By W. W. Hurlbut. 2½ pp., Engineering Record, July 19. 10 cts.

Pipe Lines, Insulation of Joints in. Paper by W. R. Conard before New England Water Works Association. 4½ pp., Journal, New England Water Works Association, June. \$1.00.

Bending Ten-Inch Cast-Iron Pipe. Paper by C. W. Sherman before New England Water Works Association. ½ p., Municipal Journal, July 17. 10 cts.

Water Ram in Distribution System, Hartford, Conn. Paper by C. M. Saville before New England Water Works Association. 9½ pp., Journal, New England Water Works Association, June. \$1.00.

An Experience with Water Ram. The Northeast Harbor Water Company case—general data, curves and formulae. Paper by C. W. Sherman before New England Water Works Association. 14 pp., Journal, New England Water Works Association, June. \$1.00.

Purification by Ozone, Water. By R. Spaulding. 3 pp., New York State Department of Health.

Application of Ozone to Water Purification. Brief history, results in Europe, plant plans. New York State Department of Health Report. By R. Spaulding. 2½ pp., Canadian Engineer, July 10. 10 cts.

Sterilizing Water with Ultra-Violet Rays. The new "Pistol" Light and its applications in large and small scale plants. By M. Von Recklinhausen. 1 p., Engineering Record, August 2. 10 cts. 2 pp., Electrical World, July 26. 10 cts.

Use of Alum by Washington Water Works. Data on use of alum to reduce turbidity below thirty, thus increasing efficiency of slow sand filtration. Paper

by W. F. Wells before American Water Works Association. 2 pp., Municipal Journal, July 31. 10 cts.

Use of Alum in Connection with Slow Sand Filtration at Washington, D. C. Paper by W. F. Wells before American Water Works Association. 1 1/2 pp., Engineering News, August 7. 10 cts.

Use of Liquid Chlorine in Water Sterilization. 1 1/2 pp., Engineering and Contracting, July 30. 10 cts.

Mechanical Filtration at Clarksburg. By H. W. Streeter. 2 pp., Engineering Record, July 5. 10 cts.

Purchase Under Specifications of Chemicals for Use in Water Purification. 1 p., Engineering and Contracting, July 23. 10 cts.

Storing Lime for Water Softening. By C. P. Hoover and C. J. Clarke. 2 1/2 pp., Engineering Record, July 5. 10 cts.

Filtration Plant at McKeesport, Pa. By E. C. Trax. 6 pp., Municipal Engineering, July. 25 cts.

Report of Cleveland's Filtration Commission. 1/2 p. Engineering Record, July 26. 10 cts.

Micro-Organisms in Mechanical Filters of Louisville, Ky. Paper by F. H. Stover before American Water Works Association. 1/2 p., Engineering News, July 10. 15 cts. 1 1/2 pp., Engineering Record, July 26. 10 cts.

Leptomitus in Drinking Water. Chemical and bacteriological analysis. Paper by R. C. Sweetser before New England Water Works Association. 11 1/2 pp., Journal, New England Water Works Association, June. \$1.00.

Decarbonation as a Means of Removing the Corrosive Properties of Public Water Supplies. Paper by G. C. Whipple before New England Water Works Association. 34 pp., Journal, New England Water Works Association, June. \$1.00.

Water Purification at Erie. 1/2 p., Municipal Journal, July 17. 10 cts.

Pure Water, Essentials and Non-Essentials. Paper by G. A. Johnson before American Water Works Association. 4 1/2 pp., Contract Record, July 23. 10 cts.

Water Waste, Prevention of, in New York. Paper by I. M. De Varona before American Water Works Association. 1 p., Engineering Record, July 5. 10 cts. 1 1/2 pp., Canadian Engineer, July 24. 10 cts.

Rates in All Canadian Cities of 2,000 Population and Over, Water Consumption and. Abstract, Report "Water Works of Canada," Commission of Conservation, Ottawa. 1 1/2 pp., Engineering and Contracting, July 30. 10 cts.

Meter Co-efficients, Venturi. Technical discussion of errors. By A. Hazen. 4 1/2 pp., Engineering News, July 31. 15 cts.

Automobiles for Testing Water Meters. Translated from Journal fur Gasbeleuchtung. 1 p., Municipal Journal, July 17. 10 cts.

Rules, Water Works of San Diego. 2 1/2 pp., Municipal Journal, July 24. 10 cts. The City of Denver and Denver Union Water Co. Decision. 1 p., Engineering News, July 24. 15 cts. 2 1/2 p., Engineering Record, July 5. 10 cts.

Association, Convention of American Water Works. Detailed account. 4 pp., Fire and Water Engineering, July 2. 10 cts.

STREET LIGHTING AND POWER PLANTS.

Lighting in Chattanooga, White Way. By J. A. Corcoran. 1 1/2 pp., Lighting Journal, August. 10 cts.

Gases, Production and Industrial Application of By-product Coke Oven. Description of the H. Hoppers Co. oven. Paper by J. Becker and L. B. Robertson before American Chemical Society. 6 pp., Chemical Engineer, July. 25 cts.

Coke Oven Carbonization. Plans, illustrations and cost data. Paper by W. Chaney before British Institution of Gas Engineers. 4 pp., American Gas Light Journal, July 14. 10 cts.

Astoria-Bronx Tunnel of New York Consolidated Gas Company. 2 1/2 pp., American Gas Light Journal, August 4. 10 cts. 2 pp., Engineering Record, July 26. 10 cts.

Oil Engines, Cost of Generating Power with Diesel. Plant statistics, acceptance test and operating costs. By G. Kribs. 2 1/2 pp., Canadian Engineer, July 10. 10 cts.

Oil as a Supplementary Fuel in Steam Power Plants. By R. Trautschold. 6 pp., Engineering Magazine, August. 25 cts.

Electric Energy, Generation and Distribution of. For lighting and power

purposes in smaller and medium sized towns. Paper by M. M. Inglis before Convention, Union of Saskatchewan Municipalities. 3 1/2 pp., Western Municipal News, August. 10 cts. 2 1/2 pp., Canadian Engineer, July 10. 10 cts.

Coal Analysis, Preliminary Report of Committee on, of American Society for Testing Materials and the American Chemical Society. 5 pp., Chemical Engineer, July. 25 cts.

Tacoma's Nisqually River Development. Hydraulic features of a 19,000 kw. municipal plant utilizing a 500-ft. fall. By R. H. Richards. 3 pp., Electrical World, August 2. 10 cts.

Machinery, Following Up Purchase and Installation of. By A. W. Welch. 3 pp., Engineering Magazine, August. 25 cts.

FIRE AND POLICE.

Apparatus, Motor-Propelled Fire. General considerations and cost data. By G. W. Booth. 4 pp., Safety Engineering, July. 25 cts.

Driving Centrifugal Fire Pumps. Electric motors and steam turbines for driving centrifugal pumps. 2 1/2 pp., Safety Engineering, July. 25 cts.

Fire Defenses. Communities. Data of fires in small towns lacking fire-fighting equipment. 4 pp., Safety Engineering, July. 25 cts.

Incendiary Fires in New York. Large percentage; responsibility of insurance companies; carelessness and faulty construction. Abstract of paper by J. John before National Association of Manufacturers. 1 1/2 pp., Municipal Journal, July 17. 10 cts.

Private Fire Protection, Basis of Charge for, and Discussion of Service Required. Paper by L. Metcalf before American Water Works Association. 3 1/2 pp., Engineering and Contracting, July 23. 10 cts. 4 1/2 pp., Fire and Water Engineering, July 16. 10 cts.

Charges for Private Fire Protection by Water Departments. Arguments for and against, with special reference to conditions at Milwaukee, Wis. Paper by W. E. Miller before American Water Works Association. 2 1/2 pp., Engineering and Contracting, July 30. 10 cts.

Police Situation, New York. By C. J. Driscoll. 7 pp., National Municipal Review, July. \$1.25.

Conditions of Vice and Crime in New York and Relations of These to the Police Force of the City. By G. H. Putnam. 7 pp., National Municipal Review, July. \$1.25.

New York Police. By T. Roosevelt. 2 1/2 pp., Outlook, July 26. 10 cts.

GOVERNMENT AND FINANCE.

Municipal Government, Increasing Complexity of. Paper by H. C. Hocken before Annual Convention of Union of Canadian Municipalities. 1 1/2 pp., Canadian Engineer, July 17. 10 cts.

Instruction in Municipal Government in the Universities and Colleges of the United States. By W. B. Munro. 12 pp., National Municipal Review, July. \$1.25.

Commission Government, Denver's. 10 pp., City of Denver, July 26.

Initiative, Referendum and Recall in San Francisco. By E. A. Walcott. 3 pp., National Municipal Review, July. \$1.25.

Charter Making, Vital Points in, from a Socialist Point of View. By C. D. Thompson. 11 pp., National Municipal Review, July. \$1.25.

Polling Places in the Schools. By L. H. Pink. 4 pp., National Municipal Review, July. \$1.25.

Graft Exposures and Prosecutions for the Past Year. Review. By C. R. Atkinson. 7 pp., National Municipal Review, July. \$1.25.

Juvenile Court Research Work in Minneapolis. By Mrs. F. R. Weed. 4 pp., American Review of Reviews, August. 25 cts.

Welfare Work for Municipal Employees. By F. L. Fuld. Report to New York City Department of Health. 1/2 p. Municipal Journal, July 31. 10 cts.

Cleveland, Newton D. Baker's Administration as Mayor of, and its Accomplishments. By E. C. Hopwood. 6 pp., National Municipal Review, July. \$1.25.

Financial Problem, A. Serious Difficulties of bond floating by cities. 7/8 p. Municipal Journal, July 31. 10 cts.

Accounting Under Utility Regulation. Details of accounting of production in a gas plant. By T. A. Britton, University of California. 2 1/2 pp., The Gas Age, July 15.

Franchise Question, Some Phases of. General legal discussion of system. By A. W. Brady. 9 pp., Aera, June. 20 cts.

TRAFFIC AND TRANSPORTATION.

Transportation and City Planning, Paper by M. R. Maltbie before City Planning Conference. 1 1/2 pp., Engineering Record, July 19. 10 cts.

Subway, Alameda Avenue, in Denver. Construction and unit costs of under-crossing built conjointly by city, street railway and railroads. 1 1/2 pp., Engineering Record, July 19. 10 cts.

New York Subway Contracts. By Dr. D. F. Wilcox. 17 pp., National Municipal Review, July. \$1.25.

Conduit Electric Railway, Notes on the Operation and Maintenance of Costs, drawings and discussions. By J. H. Hanna. 6 pp., Aera, June. 20 cts.

Train Operation in City Service. Tests of stops, delays, time, passengers, power consumption and comparison of equipments. 19 pp., Aera, July. 20 cts.

Motor Vehicles for Municipal Purposes. By T. H. Turner. 1 1/2 pp., Municipal Engineer (England), July 4. 10 cts.

Motors for Municipalities. The economic aspect. Data and comparisons. Paper by W. Culshaw before Institute of Municipal Treasurers and Accountants; Tunbridge Wells, England. 2 1/2 pp., Municipal Journal (England), July 11. 10 cts.

Comparative Costs of Horse and Motor Trucking. By R. F. Moore. 1 p., Gas Age, Aug. 1. 15 cts.

Motor Trucks in Municipal Contracting. Types, devices and examples of use. By H. W. Perry. 5 pp., Municipal Engineering, July. 25 cts.

STRUCTURES AND MATERIALS.

Cement, Fineness of, and Rate of Hydration. Relation between these qualities and hydration as a test for grinding. By H. S. Spackman. 1 1/2 pp., Canadian Engineer, July 24. 10 cts.

Action of the Salts in Alkaline Water and Sea Water on Cements. By P. H. Bates, A. J. Phillips and R. J. Wig. Technological papers of Bureau of Statistics No. 12.

Proposal for Establishing Standard SO₃ Content for Portland Cement. International Association for Testing Materials. 3 pp., Chemical Engineer, July. 25 cts.

Apparatus for Determining Consistency. Paper by C. W. Chapman before American Society for Testing Materials. 2 pp., Concrete-Cement Age, July. 15 cts.

The Autoclave Test for Cement. Papers by H. J. Force, Dr. A. S. Cushman, R. J. Wig, L. R. Ferguson, H. S. Spackman before American Society for Testing Materials. 6 1/2 pp., Engineering Record, July 5. 10 cts. 2 1/2 pp., Rock Products, July 22. 10 cts.

Recent Developments in the Autoclave Test for Volume Constancy in Cement. 2 1/2 pp., Engineering News, July 10. 15 cts.

Various Chemical Phenomena Encountered in the Course of Industrial Investigation. Data on limes, cements, fused cements. By J. Bied before International Association for Testing Materials. 2 1/2 pp., Chemical Engineer, July. 25 cts.

Method of Using Bulk Cement and of Handling Concrete Materials. By J. H. Libberton. 2 1/2 pp., Engineering and Contracting, July 23. 10 cts. 1 1/2 pp., Engineering Record, July 19. 10 cts.

Concrete Block, Cleveland Tests of 1 1/2 pp., Concrete-Cement Age, July. 15 cts.

Tests of Reinforced Concrete Wall and Column Footings. Abstract of University of Illinois Tests. 2 pp., Engineering Record, Aug. 2. 10 cts.

Tests of Natural Concrete Aggregates. Tables and Data. Paper by R. S. Greenman before American Society for Testing Materials. 1 p. Rock Products, July 22. 10 cts.

Method and Apparatus for Determining Consistency. Wet concrete. Paper by C. M. Chapman before American Society for Testing Materials. 1 p. Engineering Record, July 12. 10 cts.

Concrete Tile and Joist Construction. 1 1/2 p. Concrete-Cement Age, July. 15 cts.

Waterproofing of Concrete. Permeability; effect of foreign substances; asphalt application. Report of Committee of American Society for Testing Materials. 2 pp., Contract Record, July 23. 10 cts.; 1 p., Engineering Record, July 12. 10 cts.

Mortar Tests with Mixtures of Normal Consistency and Work Consistency. Paper by W. B. Reinke before American Society for Testing Materials. 2 pp., Engineering and Contracting, July 16. 10 cts.

Action of Various Substances on Mortar. Paper by R. K. Meade before American Society for Testing Materials. 2½ pp., Canadian Engineer, July 24. 10 cts. 1½ pp., Engineering Record, July 5. 10 cts.

Sand. Some Observations on the Testing of. Paper by W. B. Reinke before American Society for Testing Materials. 2 pp., Contract Record, July 30. 10 cts.

Lime. Specifications for. Report of Committee of American Society for Testing Materials. 1 p., Rock Products, July 22. 10 cts.

Clay. Silica, Alumina, Testing of Refractories. Data on fusion, load, temperature, slagging and chemical tests. Paper by A. V. Bleininger before American Society for Testing Materials. Rock Products, July 22. 10 cts.

Steel Plate. Influence of Copper in Retarding Corrosion of. Data of laboratory tests. Abstract of paper by D. M. Buek before American Chemical Society. 2 pp., Engineering News, July 31. 15 cts.

Strain Gage. Use of, in Testing Materials. Paper by W. A. Slater and H. F. Moore before American Society for Testing Materials. 1 p., Engineering Record, Aug. 2. 10 cts.

Testing Materials. American Society for Annual Meeting of. Abstract of papers. 3½ pp., Engineering News, July 10. 15 cts. 3 p., Concrete-Cement Age, July 15. 15 cts.

Bridge. Washington Street, Norwalk, Conn. Ten reinforced concrete spans and one double-leaf, bascule, plate-girder span. 1½ pp., Engineering Record, July 26. 10 cts.

Small Bascule Highway Draw Span. Designs and costs. Paper by L. E. Moore before Boston Society of Civil Engineers. 8 pp., Journal, Association of Engineering Societies, June. 30 cts.

Bridge Floors Replaced with Concrete. By L. C. Smith. Report, Michigan State Highway Commission. 1 p., Canadian Engineer, July 10. 10 cts.

Ferro-Concrete Bridges. By H. Howard Humphreys and W. T. Taylor. 1 p., Municipal Journal (England), July 4. 10 cts.

Lift Bridges of Milwaukee. 5½ pp., Municipal Engineering, July. 25 cts.

Double-Deck Bascule Bridge. 2 pp., Engineering News, July 17. 15 cts.

Drawbridge, A Low-Cost. ¾ p. Engineering Record, July 19. 10 cts.

Turntable Drawspan for a Temporary City Highway Bridge. 1 p., Engineering Record, Aug. 2. 10 cts.

Pivot Pier of Chelsea Bridge With Hollow Concrete Shaft and Foundations Built in Submerged Basket Cribs. 1½ pp., Engineering Record, Aug. 2. 10 cts.

Retaining Wall. A Steel Pile. By J. McNeal. 1½ pp., Municipal Journal, July 24. 10 cts.

Design of Standard Reinforced Concrete Retaining Walls. Formula, detailed technique and calculations. By H. M. Gibb. 2½ pp., Engineering News, July 24. 15 cts.

Abutment. Design of Reinforced Concrete. Theoretical Formula applied to practice. By H. R. Mackenzie. 5 pp., Canadian Engineer, July 31. 10 cts.

Reinforced Concrete Wall Footings and Column Footings. General Theory, Formulas and Conclusions Based Upon Tests of. Abstract of Bulletin 67, University of Illinois. By A. N. Talbot. 5½ pp., Engineering and Contracting, July 30. 10 cts.

MISCELLANEOUS.

House Refuse. The British Method of Disposing of, by Crushing and Pulverizing It to a Fertilizing Powder. By J. A. Seager. 1½ pp., Engineering and Contracting, July 23. 10 cts.

Garbage and Waste Disposal, Mixed Method. By E. B. Stuart. 6 pp., Municipal Engineering, July. 25 cts.

Improvements in Garbage Incinerators. History of designs; principles. By J. Hammersley-Heenan. 3½ pp., Contract Record, July 16. 10 cts.

New York City's Garbage Disposal Contract Specifications. 1½ pp., Engineering News, August 7. 15 cts.

Work of the Philadelphia Bureau of Highways and Street Cleaning. 4 pp., Good Roads, July 5. 10 cts.

Smoke Abatement. Problem of. Data and discussion of various devices. Paper by W. A. Hoffman before Engineer's Club of St. Louis. 26 pp., Journal, Association of Engineering Societies, June. 30 cts.

New York's Smoke Ordinance. ½ p., Engineering Record, July 26. 10 cts.

Bibliography of Smoke and Smoke Prevention. By E. H. McClelland. 164 pp., Bulletin 2, University of Pittsburgh. 50 cts.

Noise Problem in Chicago. Paper by Dr. W. O. Nance before City Club of Chicago. 9½ pp. City Club Bulletin, Chicago, July 23.

Town Planning. Important Elements in. Aims, systems; streets, civic centers and factories; building restrictions. By C.

J. Vorath. 3 pp., Contract Record, July 30. 10 cts.

Waterfront. Development of Municipal, of Oakland, California. By W. C. Willard and F. W. Johnson. 6 pp., Engineering and Contracting, July 16. 10 cts.

Planting for Prairie Towns, Street and Park. Paper by N. M. Ross before Convention of Union of Saskatchewan Municipalities. 1 p., Western Municipal News, August. 10 cts.

Recreation Center, The, As a Neighborhood Institution. Paper by Dr. J. Elliott before Playground and Recreation Association of America. 4 pp., Playground, August. 25 cts.

Planning Recreation in an Industrial Community. Paper by G. R. Taylor before Playground and Recreation Association of America. 5 pp., Playground, August. 25 cts.

Swimming Pool. St. Louis Municipal Open Air. By H. M. Crutcher. 2½ pp., Municipal Journal, July 31. 10 cts.

Social Centers. By J. Collier. 5 pp., National Municipal Review, July. \$1.25.

Housing. Municipal, the Obligations of Local Authorities. Paper by L. Lindow before Urban District Councils' Association, 1 p., Local Government Journal, July 19. 5 cts.

Wage for Laborers on City Work, Minimum. By C. M. Fassett. 4 pp., Pacific Municipalities July. 25 cts.

Contracts. Various Forms of. 3½ pp., The Contractor, July 15. 20 cts.

Clerical End of Contracting. General principles of accounting for contractors. 2 pp., Contractor, August 1. 20 cts.

Quantity System of Estimating. Loss by present method; new system; cost surveys; advantages. Paper by A. Wright before General Contractors' Association, San Francisco. 3 pp., Contract Record, July 23. 10 cts.

Efficiency. Experiences in. By B. A. Franklin. 4½ pp., Engineering Magazine, August. 25 cts.

Depreciation. Wrong Use of Element of, in Valuations to Control Rates. Rate-making and safeguarding earnings. By R. B. Rigenberick. 8 pp., Aera, July. 20 cts.

Resuscitation. Mechanical, The Pulsomotor. By H. E. Bertling. Canadian Mining Journal.

Engineers. Relations of Consulting and Municipal, in Great Britain. Abstract and discussion of paper by H. C. H. Shenton before Institution of Municipal Engineers, London. 1½ pp., Engineering News, July 31. 15 cts.

Street Monuments in St. Paul. ¼ p., Municipal Journal, July 17. 10 cts.

Bundy, superintendent of the fire alarm, Watertown, N. Y.

The secretary's bulletin says in part:

Come to this convention and exchange ideas with the other members, get information beneficial to your city—learn the methods of how other cities handle their electrical departments—what other cities are doing in municipal street lighting—municipal electric inspections for the prevention of fires—modern fire alarm and police telegraph system—show the other members what you are doing and when you return home, show your mayor and commissioners of the modern way of standardizing the electrical department of your city. There will be exhibits of modern electrical apparatus—come and see these things, they are all becoming necessary for the welfare of your municipality. At this convention you will meet municipal electricians from all over the United States and Canada, and even if you only carry one good idea back to your city you will have goods to deliver well worth the expenditure of the trip by your city government. National information is an asset to any municipality.

American Society of Engineering Contractors.

The American Society of Engineering Contractors, Incorporated, filed organization papers with the Secretary of State Aug. 6 under the membership corporation law.

The object is the advancement of engineering and contracting knowledge and practice, the maintenance of a high professional and business standard, the elimination of improper practices in the profession and business, and the promotion and strengthening of proper professional and business relations.

NEWS OF THE SOCIETIES

Calendar of Meetings.

August 19-22. INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS.—Eighteenth Annual Convention, Watertown, N. Y.

August 25-30. FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, Buffalo, N. Y. Dr. Thomas A. Story, Secretary General, College of the City of New York.

August 26-28. CENTRAL STATES WATER WORKS ASSOCIATION.—Seventeenth Annual Meeting, Cedar Point, O.—R. P. Bricker, Secretary, Shelby, O.

September 1-6. INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. Forty-first Annual Convention, Grand Central Palace, New York City. James McFall, Secretary, Roanoke, Va.

September 9-13. AMERICAN PUBLIC HEALTH ASSOCIATION.—Annual Convention, Colorado Springs, Colo.—S. M. Gunn, secretary, 755 Boylston Street, Boston, Mass.

September 10-12. NEW ENGLAND WATER WORKS ASSOCIATION.—Annual Convention, Philadelphia, Pa. Willard Kent, Secretary, Narragansett Pier, R. I.

September 22-26. ILLUMINATING ENGINEERING SOCIETY.—Annual Convention, Hotel Schenley, Pittsburgh, Pa. Jacob Israel, Secretary, 29 West 39th St., New York City.

September 29-October 4. AMERICAN HIGHWAY ASSOCIATION.—Annual Convention, Detroit, Mich. J. E. Penneybacher, Secretary, Washington, D. C.

October 1-2. LEAGUE OF PACIFIC NORTHWEST MUNICIPALITIES.—Second Annual Conference,

Rose City, Wash. Charles G. Haines, Secretary, Walla, Walla, Wash.

October 7-10. AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Twentieth Annual Meeting, Wilmington, Del.—A. Prescott Folwell, Secretary, 50 Union Square, New York City.

October 22-24. PENNSYLVANIA WATER WORKS ASSOCIATION.—Annual Convention, Philadelphia, Pa. M. C. Hawley, chairman Executive Committee, 504 Park Building, Pittsburgh, Pa.

November 10-15. UNITED STATES GOOD ROADS ASSOCIATION.—Meeting St. Louis, Mo. John H. Bankhead, president; J. A. Rountree, secretary, 1021 Brown-Marx Building, Birmingham, Ala.

November 12-15. NATIONAL MUNICIPAL LEAGUE.—Annual Convention, Toronto, Canada. Clinton Rogers Woodruff, Secretary, 705 North American Building, Philadelphia, Pa.

December 9-12. AMERICAN ROAD BUILDERS' ASSOCIATION.—Annual Convention, First Regiment Armory, Philadelphia, Pa. E. L. Powers, Secretary, 150 Nassau street, New York City.

International Association of Municipal Electricians.

Secretary Clarence R. George, Houston, Tex., has sent out a bulletin to active and associate members regarding the eighteenth annual convention to be held at the New Woodruff Hotel, Watertown, N. Y., Aug. 19-22. Manufacturers wishing to secure exhibit space should correspond with H. C.

The principal office is in Manhattan. Among the directors are Cassius E. Gillette, of Philadelphia; Howard J. Cole, of Montclair, N. J.; John Marshall and Wallace R. Harris of Regina, Can.; Julius R. Weinburger, of Brooklyn; Edward Wegmann, of Yonkers; Willard D. Lockwood, of Santo Domingo, Cal.; Dewitt V. Moore, of Indianapolis; Leon F. Peck, of Greenwich, Conn.; Eugene H. Abadie, of St. Louis; Richard T. Dana, of Islip; Frank B. Bosh, of Harrisburg; William B. Bamford, of Belmar, N. J.; Carl Weber, of Chicago, and Curtis A. Mees, of Charlotte, N. C.

American Road Congress.

Twenty-four of the foremost organizations interested in good roads and the development of farm life have signed the Official Call for the Third American Road Congress to be held at Detroit, Mich., during the week of September 29. The call sums up in the following clear cut and impressive paragraphs the good roads situation throughout the United States and the reasons which actuate the holding of this great national convention:

WHEREAS, the rapid concentration of population in our large cities and the high cost of living are, in a considerable measure, due to bad roads which render farms inaccessible, transportation uncertain and costly, educational advantages limited, and social conditions unattractive; and

WHEREAS, it is estimated that the people of this country are annually expending on the public roads upwards of \$200,000,000, a large percentage of which, by reason of lack of system, ignorance of proper methods, and wasteful management, is not accomplishing results at all commensurate with the outlay; and

WHEREAS, the National Government and the various state government are now endeavoring to ascertain the character of legislation which will best accomplish a maximum of effective road improvement and maintenance coupled with a wise and efficient expenditure of the road revenues; and

WHEREAS, the increasing use of the motor vehicle has brought about problems of construction and maintenance of roads which are exceedingly difficult and for the solution of which the combined wisdom and experience of trained specialists are necessary; and

WHEREAS, the aroused public spirit of the people in behalf of the movement for better roads has found expression in the form of many organized bodies; and

WHEREAS, it is only by a correlation and coordination of efforts, and by an exchange of knowledge and experience that the greatest good can be accomplished;

THEREFORE, we, the undersigned, representing the organized road movement of America, hereby join in calling the American Road Congress to hold its sessions in the city of Detroit, State of Michigan, during the week of September 29, for the purpose of giving careful consideration to the subjects of road legislation, both national and state; the administration of public roads throughout America including states, counties, and the smaller subdivisions thereof, and the provinces of Canada; the problems of construction and maintenance; the financial questions concerned with road revenues and their expenditures; the advancement of highway engineering in educational institutions; and other questions, the consideration of which may be of practical aid to the betterment of the public roads of America.

American Highway Association, L. W. Page, President; American Automobile Association, Geo. C. Diehl, Chairman Good Roads Board; National Grange, Oliver Wilson, Master; National Old Trails Association, J. M.

Lowe, President; Travelers Protective Association, E. B. Smith, National Chairman, Goods Roads Committee; Quebec-Miami International Highway Association, H. D. Hadley, President; Omaha-Lincoln-Denver Good Roads Association, S. A. Searle, President; Southern Appalachian Good Roads Association, Joseph Hyde Pratt, President; Arizona Good Roads Association, T. G. Norris, President; Arkansas Good Roads and Drainage Association, W. A. Coker, President; Greater Colorado Highway Association, E. E. Sommers, President; Georgia Federation of Road Authorities, Wm. F. Eve, President; Illinois Highway Improvement Association, W. G. Edens, President; Indiana Good Roads Association, Chas. C. Brown, Secretary; Kansas State Good Roads Association, Arthur Capper, President; Kentucky Good Roads Association, Joe F. Bosworth, President; Michigan State Good Roads Association, P. T. Colgrove, President; Minnesota Roadmakers Association, John H. Mullen, Secretary; New York Roadbuilders Association, John J. Ryan, Secretary; North Carolina Good Roads Association, Joseph Hyde Pratt, Secretary; Ohio Good Roads Federation, Jesse Taylor, President; Virginia Road Builders' Association, C. B. Scott, President; West Virginia Board of Trade, Good Roads Committee, Howard Sutherland, Chairman; Wisconsin Highway Commissioners Association, H. J. Kuelling, President.

International Association of Fire Engineers.

It is expected that between 20,000 and 25,000 firemen from all parts of the world will be in New York City for the week, making it one of the greatest events of its kind in history. There will be discussions of all the phases of the fire fighting, fire prevention and fire insurance world, together with tests of many forms of apparatus for fighting fires, preventing fires and rescuing persons from fires with their effects.

Among the fire chiefs who will be present with representative companies and apparatus will be Chief Dwyer of London, Chief Cordier of Paris, Chief Mier of Amsterdam, Holland; Chief Lisberg of Copenhagen, Chief Pardage of Edinburgh and Chief Waller of Alexandria, Egypt.

The detailed program for the week follows:

Monday, September 1—Opening of the fire chiefs' convention at the Grand Central Palace. Mayor Gaynor will welcome the firemen. There will be a discussion of scientific papers on motor propelled and motor pumping apparatus. The merits of the various pumps will be discussed by such experts as Chief Bennett of Birmingham, Ala.; Chief McDonald of Chicago, Chief Mullen of Boston, Chief Quigley of Syracuse, Chief Moore of Newark, Chief Demarest of the New York repair shops and Chief Kenlon and Chief Dwyer of London, England.

Tuesday—There will be a discussion

of scientific papers continued, including fire prevention laws and the two-platoon system. There will also be a debate between Commissioner Johnson and Chief Kenlon, representing the New York department and Mr. Lake and another representative of the insurance interests on the subject of insurance and its relation to the fire losses. At night there will be memorial services for the firemen.

Wednesday—Scientific tests of all kinds of apparatus at the pier foot of West 54th street. This test will be the most complete ever given. Only those with cards will be admitted to the pier.

Thursday—Demonstration of fire-boats off the Battery. The fire chiefs will board the steamer Grand Republic and will sail down the bay. Luncheon will be served on board. The visitors will be landed at Coney Island at 3:30 o'clock, where dinner will be served.

Friday—This will be the big day of the celebration. It will mark the largest parade of firemen ever seen in any city. It is expected there will be 1,500 members of the New York department in line, with apparatus representing 150 companies and 3,500 uniformed firemen of departments outside of New York city. The big parade will be coincident with the unveiling of the firemen's memorial in Riverside Drive.

Saturday—Business session of the convention, reports of committees on tests and election of officers. That night there will be a dinner at the Hotel Astor.

Wisconsin Police Chiefs Association.

Neenah, Wis., July 30.—The association unanimously elected Thomas R. Malone, Wausau, as president; Don McKay, Waukesha, secretary and treasurer, and Thomas Calder, Merrill, vice president. Milwaukee was chosen as the next meeting place. Police Chief H. C. Baker of Racine, speaking on the enforcement of the law, cited the social evil and Sunday closing as the greatest problems with which the police have to contend. Chief John T. Janssen of Milwaukee and Chief H. C. Baker, Racine, spoke for a larger organization. Joseph Siebel of the staff of the state penitentiary at Waupun was elected a member of the association. At the next meeting the matter of the regulation of dance halls will be taken up. Arguments regarding the sale and importation of firearms were presented.

New York State City Clubs' Association.

At the annual convention, Albany, July 25, the following officers were elected: President, F. U. Bresler, Albany; vice president, Otis H. Gardner, Elmira; secretary, William Worthman, Hudson; treasurer, A. L. MacMaster, Rome. The selection of the 1914 meeting place was left to the executive committee of which Joseph S. Hanlon of Auburn, was elected chairman for the fourth consecutive term.

League of American Municipalities.

The convention was called to order, Winnipeg, Canada, August 7, by President John J. Ryder, Omaha, Neb. Mayor Deacon made the address of welcome, in the course of which he explained the system of municipal government prevailing in Canada. President Ryder responded, saying that he had visited Winnipeg many years before and on looking about the city was astonished at the growth.

Among the addresses made and topics discussed were the following:

C. J. Driscoll of the Bureau of Municipal Research, New York, formerly a police commissioner of that city, spoke of "Municipal Efficiency" with particular reference to the police departments. Mr. Driscoll's paper was a consistent argument for the expert in municipal affairs, mainly on the ground that municipal business is like any other business and requires long study and the application of scientific principles, if it is to reach the state of efficiency to which the people as ratepayers are entitled. He argued that the inexperienced man elected to office by virtue of politics or for any other reason cannot possibly be qualified to properly administer the affairs of any civic department as compared with an expert, but that if this system is to be followed the expert should be used at least to advise on the best methods and to point out the defects in existing systems.

W. A. Larkin, street commissioner, Baltimore, read a paper on "Baltimore Street Cleaning and Garbage Removal." He mentioned particularly the good work of washing machines in keeping down the dust. In the discussion following, C. L. Willert said that Buffalo is one of the cleanest cities in the country.

Ossian Lang, Mt. Vernon, N. Y., president of the board of aldermen, read a paper on "Popular vs. Expert Government," in which he argued strongly for the popular representative form on the ground that the people themselves are nearly always right and that they have an unerring faculty for disposing of the man who has not proved his worth or efficiency. He described the professional expert as a man who thinks more of his job

or his profession than of the interests of the community he may happen to be serving, and who is always ready to move along to any place that offers him more money.

In speaking on "Municipal Finance" former Mayor W. Sanford Evans reviewed briefly the history of municipal loans, noting that they were unknown two hundred years ago. Drawing from his own experience, Mr. Evans said that Winnipeg had found London to be the best market for the sale of its securities. The demand in London was for listed securities regularly dealt with in the stock market. Winnipeg is now issuing 1943-63 stock, that is, securities redeemable in that period. A large volume of securities was a benefit and a large list of holders as tending to make transfers possible without loss.

Charles L. Willert, councilman, Buffalo, N. Y., spoke on "Small Parks." He said that large parks chiefly benefited the owners of carriages and automobiles. Small parks attract the common people.

John B. Martin, election commissioner, Boston, Mass., spoke on "New Charter and Election Laws." The paper dealt principally with the new charter of the city of Boston and other local conditions.

The social features of the meeting included a trip to the municipal hydroelectric plant and other public properties, a reception by City Clerk Brown and a banquet.

PERSONALS

Wakler, T. H., Scranton, Pa., has been appointed by Commissioner of Labor and Industry John Price Jackson, engineer and fire prevention expert in the new department at a salary of \$3,000.

Cash, A. D., Chicago, has accepted the presidency of the State Good Roads Commission at a salary of \$3,500 a year.

O'Donnell, C. F., Dallas, Tex., has been appointed city attorney.

Ligerly, P. K., Asheville, Va., has resigned as chief of police, because of ill health.

Witherstine, H. P., Herkimer, N. Y., has been appointed by State Highway Commissioner John N. Carlise, superintendent of highways in Queens at a salary of \$3,500 a year.

Hellard, Hans, San Antonio, Tex., has been appointed city engineer at a salary of \$3,000.

Blauvelt, C. E., Highstown, N. J., has resigned from the mayoralty to go West.

Knight, William F., Daggett, C. D., and Allen, T. D., Pasadena, Cal., have been chosen to represent the city in the advisory board of the State Highway Commission.

Hood, George A., Philadelphia, Pa., has been appointed marshal of the Bisbie Public Service Commission at \$2,000 a year.

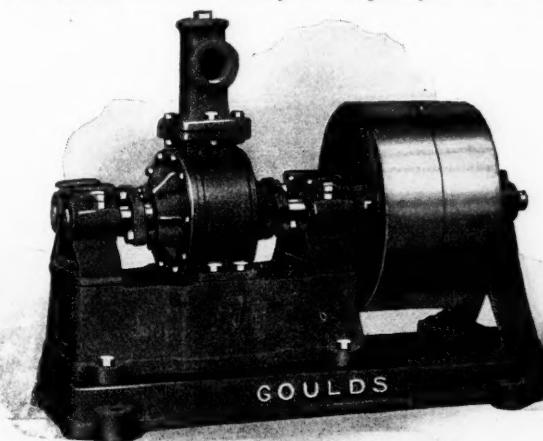
MUNICIPAL APPLIANCES**New Rotary Power Pump.**

A new type of rotary power pump has just been developed by the Goulds Mfg. Co., Seneca Falls, N. Y. This pump differs from the rest of the line of pumps of the same capacity in that gear style cams have been substituted for the three-toed cams used in the remainder of the line, as shown by one of the illustrations, and the gears on the end of the cam shafts have been eliminated.

Two sizes are built: No. 1 has a capacity of 25 to 50 gallons per minute

at 225 to 450 revolutions and No. 2 has a capacity of 50 to 100 gallons per minute at 225 to 450 revolutions. Both pumps are suitable for pressures up to 100 pounds or 230 feet elevation.

They are mounted on a cast iron bed plate, fitted with an outboard bearing and tight and loose pulleys for belt drive. The suction connection is made within the base directly beneath the case and is reached through hand holes in the base. No. 1 has two discharge openings, one tapped for pipe and the other threaded for hose couplings. No.



GOULDS' NEW ROTARY PUMP.



GEAR STYLE CAMS.

2 has three discharge openings, two fitted the same as No. 1, and the third fitted with an interchangeable blank flange.

The suction is 3-in. on No. 1 and 4-in. on No. 2. The discharges are for 1½ and 2-in. pipe or hose respectively.

The Strickler Ratchet Pipe Cutter.

W. W. Strickler & Brothers, Columbus, O., manufacture a ratchet pipe cutter for cutting steel, wrought and cast iron pipe. The tool will cut small or large pipe, up to thirty inches in diameter. Cuts are made perfectly clear without burrs on either side of the shell. The largest sizes of cutters are handled by two men, the smaller ones by one man. A ten-inch cast iron pipe can be cut in ten minutes.

The cutter consists essentially of a band carrying the cutting tool and a yoke and a handle by which the band is rotated. The band is composed of two hinged sections. This makes it easy to adjust the cutter to the pipe in a trench. One swing bolt closes the ring in place. There are four guides which hold the machine in place. Each has a hardened tool steel roller, which reduces friction to a minimum as the machine rotates about the pipe and is an important factor in the speed and economy of operation.

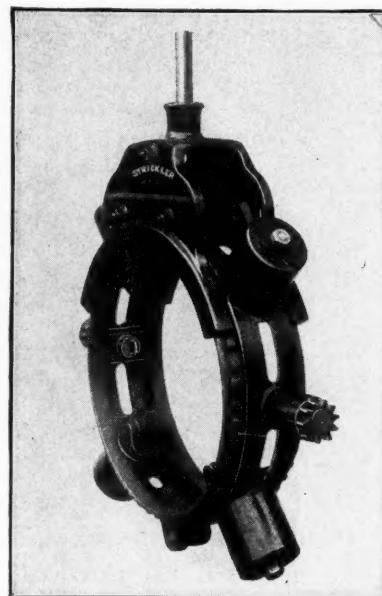
The yoke which holds the handle is equipped with dogs, which engage the teeth on the body of the tool and the band is rotated around the pipe by merely pumping the handle.

The band carries a cutting tool (a regular lathe tool) provided as a feeding device which sends the cutting tool in automatically. The feeder is actuated by the yoke each time the ring travels around the pipe.

Strickler cutters are made in eight sizes. The smallest size cuts pipe from three-quarters to two inches in diameter and the largest one 24 to 30 inches.

It is said that cracked or broken joints are unknown where these cutters are used. Some water works are making strong joints by putting the ma-

chine on a couple of inches from the end of the joint and cutting out a channel around the pipe a quarter of an inch in width and a quarter to three-eighths of an inch deep. When



AN ANGLING VIEW OF NO. 6 CUTTER WHICH CUTS 12 TO 16-INCH PIPE.

the joint is poured the groove is filled with lead and a joint of unusual strength made.

INDUSTRIAL NEWS

Cast Iron Pipe—Chicago Quotations: Four-inch, \$28; 6 to 12-inch, \$26; 16-inch and up, \$25. Birmingham—The tone of the market has improved and the volume of business is better than for several weeks. Shops are working at normal output. Quotations: Four-inch, \$22; 6-inch and up, \$20. New York—The Department of Water Supply is giving out contracts which will require 1,500 tons of C. I. pipe. No other large orders are in sight. Private buying is light. Quotations: Six-inch, car loads, \$23 to \$24 per ton.

Lead.—Market is quiet. Quotations: New York, 4.50c.; St. Louis, 4.375c.

Audit Company.—The American Audit Company announces the election of the Honorable Harry M. Rice, Commissioner of Accounts for the City of New York, as vice-president of the company. Mr. Rice, by reason of his broad experience, is known throughout the country as a municipal efficiency expert and an authority on municipal accounting. After December 31, when his term of office as commissioner of accounts expires, he will have entire charge of the municipal business for this company.

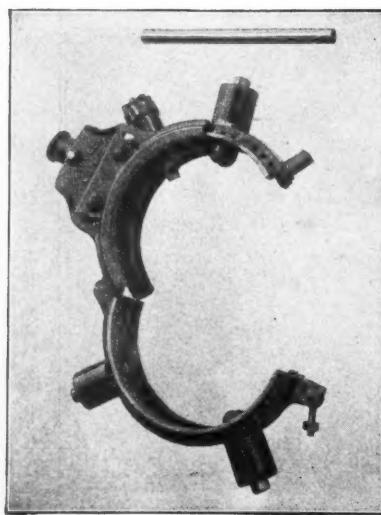
Garbage Plant Accessories.—The Erie Manufacturing & Supply Company, Erie, Pa., sales agents in that locality for the Dodge Manufacturing Company, has contracted with the city of Belle Valley, Erie County, Pa., for bucket elevators and screw conveyors

for handling ashes from the garbage burners in the city garbage plant.

Rope Drive.—The Dodge Manufacturing Company, New York City, has arranged with the park department for a 50-horsepower rope drive in the New York Zoological Park. This drive will connect an oil engine with a line shaft driving refrigerating machines and generators in the public service building. Specifications call for two 72-inch and 36-inch iron sheaves of seven grooves each, line shafting, clutches, pulleys, hangers, and self-oiling bearings; 375 feet of Dodge Firmus manila transmission rope will be used on the drive.

Caterpillar Tractor.—The Holt Manufacturing Company has been formed with a capital of \$3,000,000 by a consolidation of the following companies: Holt Manufacturing Company, Stockton, Cal.; Holt Caterpillar Company, Peoria, Ill.; Best Manufacturing Company, San Leandro, Cal.; Houser & Haines Manufacturing Company, Stockton, Cal.; Canadian Holt Company, Calgary, Canada; Aurora Engine Company, Stockton, Cal. The East Peoria plant will be much enlarged, it is said. Ben C. Holt, 50 Church street, New York, will have charge of export and general sales. H. L. Boswell will have charge of the sales from Peoria.

Oxyacetylene Flame for Boiler Cleaning.—A new type of boiler-tube cleaner, or more strictly speaking, a new method of boiler-scale removal, has been recently invented and placed upon the market in England by Adolph Schror. The principle of the new apparatus is simple. It consists in the employment of an oxyacetylene flame of high temperature, but of moderate pressure, which is rapidly played upon the scale. The effect is to disintegrate and break down the deposits, and, notwithstanding the high temperature of the flame, the makers claim that there is no cause for anxiety on the score of undue heating in the boiler tubes, and that the apparatus may be used to remove the thinnest scale.



THE CUTTER—OPEN.



10-INCH AND 12-INCH CAST IRON LINES CUT IN TRENCH WITH NO. 5 CUTTER.

WEEKLY CONTRACT NEWS

ADVANCED INFORMATION
BIDS ASKED FOR



CONTRACTS AWARDED
ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Ind., Rensselaer	1.30 p.m., Aug. 16.	Improving roads	A. B. Lowman, Supt.	
Wash., Walla Walla	Aug. 16.	Improving highway, 14 miles	W. J. Roberts, Secy.	
O., Scio	noon, Aug. 16.	Concrete, 17,000 yds.	H. E. Johnson, Vll. Clk.	
O., Cleveland	11 a.m., Aug. 16.	Improving road	J. F. Goldenbogen, Co. Clk.	
Ohio, Lykens	noon, Aug. 16.	Macadamizing roads	W. H. Burse, Ch.	
Iowa, Bettendorf	2 p.m., Aug. 16.	Vitrified brick and concrete	H. F. Abramson, Town Clk.	
Pa., Carrick	8 p.m., Aug. 18.	Paving Miller Ave.	W. M. Donley, Boro. Engr.	
N. J., Red Bank	8 p.m., Aug. 18.	5,300 sq. yds. street paving	A. C. Harrison, Boro. Clk.	
N. Y., Albany	1 p.m., Aug. 18.	Repairing highways	J. N. Carlisle, Comr.	
Ala., Montgomery	Aug. 18.	Gravel roads, 3 miles	Bd. Revenue.	
N. Y., Binghamton	1 p.m., Aug. 18.	Repairing state highway	J. M. Carlisle, Comr.	
Cal., Sacramento	2 p.m., Aug. 18.	Concrete and bituminized surface, 8 miles	A. B. Fletcher, Hy. Eng.	
Ia., Ft. Dodge	Aug. 18.	Cement sidewalks, 9,500 lin. ft.	City Clerk.	
Ala., Gadsden	noon, Aug. 18.	Bituminous concrete, 24,000 yds.	C. L. Marsh, C. E.	
N. Y., Huntington	2 p.m., Aug. 18.	Wood asphalt block	S. E. Simmis, Town Clk.	
Va., Highland Park	Aug. 18.	Macadam, 2.25 miles	J. M. Lewis, Ch. Com.	
Pa., Philadelphia	noon, Aug. 18.	Sheet asphalt, wood macadam sidewalks	Director Pub. Works.	
Wash., Walla Walla	Aug. 18.	Roads, 12 miles	State Hy. Comr.	
Pa., Jamestown	Aug. 19.	Brick, 46,000 yds.	R. L. Rodgers, Boro. Secy.	
N. Y., Albany	1 p.m., Aug. 19.	Repairing highways	J. N. Carlisle, Comr.	
Ala., Abbeville	1 p.m., Aug. 19.	Sand clay roads	W. S. Keller, Hy. Eng.	
O., Toronto	noon, Aug. 19.	Grading, draining, curbing and paving	Jas. Connor, Vll. Clk.	
O., Cleveland	Aug. 20.	Improving roads	J. F. Goldenbogen, Clk.	
N. Y., Schenectady	2.30 p.m., Aug. 20.	Sidewalks, etc.	F. E. Johnson, Secy.	
N. Y., Brooklyn	11 a.m., Aug. 20.	Sidewalks, sheet asphalt, etc.	L. H. Pounds, Pres.	
N. J., Cranford	8 p.m., Aug. 20.	Curb and gutter	E. Mosher, Engr.	
Ill., Lake Forrest	6 p.m., Aug. 20.	Asphaltic concrete	J. P. Pirie, Jr., Pres.	
Pa., Knoxville	8 p.m., Aug. 20.	Paving Amander Ave.	W. M. Donley, Boro. Engr.	
Ind., Etraughn	10 a.m., Aug. 21.	Improving road	A. Clayton, Clk.	
N. Y., Poughkeepsie	Aug. 21.	Cement sidewalks, etc.	Bd. of Pub. Wks.	
La., New Orleans	Aug. 25.	Highway, 10 miles	W. E. Atkinson, Engr.	
Ohio, Canal Dover	noon, Aug. 25.	Paving, 36,000 sq. yds.	G. E. Arnold, City Eng.	
Pa., Pittsburgh	10 a.m., Aug. 26.	Public roads	R. J. Cunningham, Compt.	
N. J., Elizabeth	Aug. 26.	Tarvia, etc.	J. L. Bower, Co. Engr.	
O., Logan	noon, Aug. 26.	Improving Walnut St.	C. A. Rochester, Vll. Clerk.	
O., Mt. Gilead	Aug. 27.	Macadamizing Joint County road.	C. Sipe, Co. Auditor.	
Ohio, Galion	10 a.m., Aug. 27.	Macadam roads	C. Sipe, Co. Auditor.	
N. J., Elizabeth	3 p.m., Aug. 27.	Hard surface pavement, 8,000 sq. yds.	J. L. Bower, Engr.	
Pa., Courtdale	noon, Aug. 28.	Improving road	F. R. Hendershot, Compt.	
Ohio, Troy	noon, Aug. 28.	Paving with concrete	M. T. Staley, Co. Auditor.	
Ohio, Cincinnati	noon, Aug. 29.	Improving roads	A. Reinhardt, Clk.	
O., Steubenville	Aug. 30.	Roads, 9 4-10 miles	H. O. Elliott, Chrmn.	
Ind., Greencastle	Aug. 30.	Macadam	C. L. Ehrhart, Co. Auditor.	
Ariz., Phoenix	Sept. 1.	Bitulithic, 21,500 yds.; asphaltic concrete, 12,000 yds.	F. M. Holmquist, C. E.	
Minn., Laurel	2 p.m. Sept. 2.	Sheet asphalt, 35,000 yds.; wood block, 10,000 yds.	H. W. Bell, C. E.	
Ind., Crownpoint	Sept. 3.	Gravel road	C. A. Johnson, Co. Auditor.	
Ohio, Canton	Sept. 4.	Massillon-Navarre Road, 2 miles	J. E. Walls, Co. Aud.	
Ind., Logansport	11 a.m., Sept. 5.	County line highways	S. Struble, Pres.	
Ohio, Cincinnati	noon, Sept. 5.	Improving Kemper Road	H. A. Taylor, Co. Auditor.	
S. D., Selby	2 p.m., Sept. 9.	Cement sidewalks	C. Sedgwick, Co. Auditor.	
Ind., South Bend	Sept. 15.	Paving highway	T. A. Schnider, Clk.	
Canada, Cayuga	noon, Sept. 16.	Macadam roads, 26½ miles		

SEWERAGE

Ohio, Harrison	noon, Aug. 16.	Sewer	J. Zimmerman, Vll. Clk.
Wis., Lake Geneva	Aug. 16.	Vit. pipe, 14,000 ft. 6 to 12-in.	A. Bullock, C. Clk.
N. C., Hamlet City	Aug. 16.	Sanitary sewer system, 6 miles pipe	H. P. Austin, Ch.
N. J., Camden	8 p.m., Aug. 18.	Several streets, sewers	J. C. Haines, Chmn.
Minn., Winona	Aug. 18.	Vitrified pipe, 11,000 ft. 8-inch	H. B. Walling, City Eng.
Mont., Butte	noon, Aug. 18.	Storm sewer	G. J. Stromme, Ch.
Ohio, Ravenna	noon, Aug. 18.	Concrete culverts	W. H. Linton, Dir.
Pa., Plains	7 p.m., Aug. 18.	Sewers and other street work	R. Garman, Pres. Comrs.
Cal., San Jose	7 p.m., Aug. 18.	Sewers on 15 streets	R. E. Walter, C. Clk.
Wis., Waupon	2.30 p.m., Aug. 19.	Vitrified pipe, 45,000 ft.	R. C. Merriam, C. Clk.
Can., Toronto	Aug. 19.	Midway sewer system	H. C. Hocken, Mayor.
Okla., Sulphur	2 p.m., Aug. 19.	Sanitary sewer system	C. S. Ucker, Washington.
Va., Apalachia	2 p.m., Aug. 19.	Sewerage system; cost, \$21,000	E. A. Collins, Reporter.
Cal., Chico	Aug. 19.	Septic tank; cost, \$6,000	City Clerk.
Ore., Salem	noon, Aug. 19.	Trunk line sewer	D. H. Rummel.
Va., Roanoke	noon, Aug. 19.	Sewers in various streets	F. L. Giboney, C. E.
Wis., Waupon	2.30 p.m., Aug. 19.	Vitrified pipe, sewers	R. C. Merriam, City Clk.
N. Y., Eastwood	4 p.m., Aug. 19.	Vitrified pipe, 9½ miles; disposal plant, etc.	L. O. Buckholz, Clk.
Mo., St. Louis	Aug. 19.	Vitrified pipe and concrete sewers	W. T. Finley, Secy.
O., Columbus	Aug. 19.	Trunk sewer, 1,750 ft. 24-in. vit. pipe	P. B. Kemper, Clerk.
Mich., Birmingham	3 p.m., Aug. 20.	Sewers	D. Bell, Vll. Clk.
Kan., Halstead	Aug. 20.	Sewer system; cost, \$33,000	J. D. Lange, City Clk.
O., Akron	11 a.m., Aug. 20.	Storm sewer	C. L. Bower, Clerk.
R. I., Central Falls	noon, Aug. 20.	Sewage disposal plant	O. P. Sarle, Ch. Engr.
Ohio, New Phila	noon, Aug. 21.	Sewage disposal plant; cost, \$38,000	G. E. Arnold, City Eng.
Ohio, Gerard	noon, Aug. 21.	Stone block, sheet asphalt, brick, etc.	J. E. Stotler, Vll. Clk.
Ill., Whitehall	7 p.m., Aug. 22.	Sanitary sewers, 9 miles	H. W. Roodhouse, Pres.
Utah, Ogden	10 a.m., Aug. 23.	Sewer District No. 118	H. J. Craven, C. Engr.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
La., Venice	11 a.m., Aug.	23	Drainage plant, canal, etc.	A. A. Buras, Pres.
O., Liberty Center	noon, Aug.	23	Several sewers	R. A. Beilharz, Vil. Clerk.
Ohio, Lorain	noon, Aug.	25	Sanitary sewer	L. B. Johnston, Clk.
Ill., DeKalb	Aug.	26	Tile pipe, 16 miles, 8 to 24-in.	M. J. Henaughan, Pr. B. L. I.
N. Y., Long Island City	Aug.	27	Concrete and vitrified pipe sewers; security \$300,000	M. E. Connolly, Boro. Pres.
N. J., Newark	2 p.m., Sept.	9	Outfall pressure tunnel	Passaic Valley Sewerage Comrs
WATER SUPPLY				
Ky., Henderson	1.30 p.m., Aug.	16	Water tube boiler, 400 H. P.	L. P. Hite, Supt.
Wash., Bremerton	Aug.	16	Filters, pipe meters, etc.	Navy Dept.
Wis., Mosinee	Aug.	16	Water works	E. Snider, Vil. Clerk.
O., Glendale	Aug.	18	Repairing water tanks, etc.	J. H. Feemster, Clk.
Minn., Milaca	8.30 p.m., Aug.	18	Water mains, 750 ft. 6-inch.	B. A. Baldowsky.
Cal., Oxnard	Aug.	19	Water tower	G. R. Beallah, City Clk.
Ga., Waycross	Aug.	19	C.-i. pipe, hydrants, valves, etc.	B. H. Klyce, C. E.
Mass., New Bedford	3 p.m., Aug.	19	Water meters	R. C. P. Coggshall, Clk.
N. C., Weldon	Aug.	20	Water works and sewerage system	W. C. Riddick, Engr.
Mosinee, Wis.	Aug.	21	Water works	Clerk.
Ore., Pendleton	Aug.	26	Gravity water system; cost, \$200,000.	F. C. Kelsey, Engr.
O., Akron	Aug.	26	Purification plant	R. M. Pillmore, Dir.
Md., Baltimore	11 a.m., Aug.	27	Head house pumping and conduit	E. B. Whitman, Water Eng.
Del., Edgemore	Aug.	27	Drilling well	Lighthouse Insp.
Ohio, Toledo	10 a.m., Aug.	28	Water and lighting plants at infirmary	C. J. Sanzenbacher, Co. Aud.
D. C., Washington	Aug.	31	Valves, 3 and 4-way castings	Pur. Agt.
Miss., Georgetown	Sept.	1	Water works	D. Mahaffy, Twn. Clk.
LIGHTING AND POWER				
Kan., Topeka	2 p.m., Aug.	16	Power house and tunnel	H. J. Waters, Pres.
Mich., Highland Park	8 p.m., Aug.	16	Pillar lighting system for Woodward Ave.	L. D. Beckley, Supt. P. W.
Conn., Hartford	Aug.	18	Power plant for sanitorium	G. L. Allen, Secy.
N. Y., Malden	2 p.m., Aug.	18	Lighting streets	Town Board.
Minn., Duluth	8 p.m., Aug.	19	Ornamental lamp posts, 19.	J. J. Roberts, Vil. Clk.
Minn., Keewatin	8 p.m., Aug.	19	Ornamental lamp poles, lead covered cables	J. J. Roberts, Vil. Clk.
Tex., Dallas	Aug.	20	Power plant, etc., for Municipal Building	City Comr.
Ind., Indianapolis	10 a.m., Aug.	25	Miscellaneous road work, repairs	W. T. Patten, Co. Auditor.
Tex., Dallas	3 p.m., Aug.	28	Jail, etc.	G. L. Fearn, Co. Auditor.
N. Y., New York	11 a.m., Sept.	2	Portable air compressing plant	J. P. Morrissey, Secy.
FIRE EQUIPMENT				
O., Akron	noon, Aug.	16	Fire station	D. P. Stein, Director.
Pa., Chester	8 p.m., Aug.	18	Repairing Silsby fire engine	J. K. Hagerty, Ch. Com.
Pa., Harrisburg	noon, Aug.	18	Combination Chemical & hose wagon, 3,000 ft. fire hose.	J. C. Kindler, Ch. Engr.
N. Y., New York	10.30 a.m., Aug.	18	Fire hose, 52,000 ft. 2½-inch; 1,000 ft. 1½-inch; 2,500 ft. 2½-inch rubber	J. Johnson, Comr.
Mass., New Bedford	8 p.m., Aug.	19	Gasoline tanks and measuring pumps	J. R. Glennon, Ch.
D. C., Washington	2 p.m., Sept.	2	Chemical fire extinguishing apparatus and alarm system	L. C. Laylin, Secy.
BRIDGES				
Ind., Muncie	Aug.	16	Several bridges	Co. Auditor Williams.
Ohio, Urbana	10 a.m., Aug.	18	Abutments for bridge	R. F. Darnall, Co. Eng.
O., Jefferson	1 p.m., Aug.	18	Culverts	J. S. Matson, Co. Eng.
Minn., Montevideo	8 p.m., Aug.	18	Concrete foot bridge	A. M. Parks, City Clerk.
O., Niles	Aug.	18	Bridges	W. R. Harrington, Co. Clk.
Kan., Wichita	Aug.	18	Several concrete bridges	E. B. Moore, Co. Engr.
O., Lebanon	11 a.m., Aug.	18	Retaining wall	T. C. Patterson, Co. Aud.
O., Akron	11 a.m., Aug.	18	Substructure	C. L. Bowers, Co. Clk.
O., Springfield	10 a.m., Aug.	18	Bridge floor	F. Hirtzinger, Pres.
Ga., Macon	9 a.m., Aug.	19	Concrete bridges (four)	J. R. Bowdre, Clk.
Neb., Nebraska City	noon, Aug.	19	45-ft concrete arch bridge	L. Stutt, Co. Clk.
Mo., Kansas City	2 p.m., Aug.	19	Viaduct	M. A. Flynn, City Compt.
O., Hamilton	10 a.m., Aug.	20	Bridge	W. W. Crawford, Co. Aud.
O., Canton	10 a.m., Aug.	20	Bridges	J. H. McConnell, Co. Aud.
O., Cleveland	11 a.m., Aug.	20	Concrete steel bridge	F. R. Lander, Co. Surv.
O., Massillon	10 a.m., Aug.	20	Miscellaneous bridge work, including paving	J. H. McConnell, Co. Aud.
Ind., Evansville	10 a.m., Aug.	21	Bridge approaches	C. P. Beard, Co. Auditor.
O., Akron	noon, Aug.	25	Superstructure of steel plate girder bridge	C. L. Bower, Co. Auditor.
O., Zanesville	11 a.m., Aug.	26	Reconstructing Sixth St. bridge	H. H. Kennedy, Co. Clk.
O., Cincinnati	noon, Aug.	29	Substructure for bridge	A. Reinhardt, Co. Clk.
O., Akron	noon, Aug.	29	Substructure and paving of bridge	C. L. Bower, Clk.
La., New Orleans	11 a.m., Aug.	30	Lift bridge over canal	A. J. Ricks, Comr.
N.J., New Brunswick	2.30 p.m., Sept.	4	Repairing bridges	A. J. Gebhardt, Dir.
MISCELLANEOUS				
Can., Kerriesdale	Aug.	18	Incinerator, 25 tons capacity	G. G. Heighway, City Clk.
Ohio, Dayton	noon, Aug.	18	Shelter house	F. J. Celarius, Vice-Pres.
N. J., Bloomfield	Aug.	18	Collecting garbage and ashes	Town Clerk Davis.
N. J., Camden	8 p.m., Aug.	19	Timber bulkhead	F. T. Van Hart, Ch.
Ill., Chicago	noon, Aug.	20	Gasoline lawn mowers, 2	So. Pk. Comrs.
Ky., Louisville	noon, Aug.	21	Uniforms for police and firemen	E. T. Tierney, Ch.
Wash., Seattle	10 a.m., Aug.	21	Trolley wire	C. B. Bagley, Secy.
R. I., Woonsocket	2 p.m., Aug.	25	High school building, including wiring, etc	G. A. Smith, Secy.
Pa., Hallstead	8 p.m., Aug.	25	Jail	C. L. Crook, Secy.
R. I., Providence	2.15 p.m., Aug.	25	Shelter house	J. H. Gainer, Mayor.
N. Y., Buffalo	11 a.m., Aug.	26	Ash cans for public buildings	F. G. Ward, Comr.
Tex., Austin	Aug.	26	Hospital	W. B. Anthony, Comr. Public Safety.
Cal., San Francisco	Aug.	27	Granite work for city hall; cost, \$1,200,000	Bd. Pub. Wks.
D. C., Washington	22 p.m., Aug.	29	Underground cable, 29,000 ft.	Comrs.
Minn., Virginia	noon, Aug.	29	Motor police patrol wagon	A. E. Bickford, Secy.

STREETS AND ROADS

Pasadena, Cal.—Residents of South Orange Grove avenue and Oak Knoll have petitioned for the improvement of their street by paving, parking and providing ornamental street lighting.

Bridgeport, Conn.—The contracts for paving with granite of Klefer street, Atlantic street, Writing street and Singer avenue were not awarded because of there being only one bid on the work, that of the Burns Co. The commission-

ers decided not to establish a precedent in this case but to readvertise for bids.

New Haven, Conn.—The following bids have been received for laying 25,590 sq. yds. of asphaltic macadam on Dixwell ave.: Union Paving Co., Schenectady, N. Y., \$156 per sq. yd. for Texas asphalt; C. W. Blakeslee & Sons, New Haven, \$1.59½ per sq. yd. for Bermuda asphalt; Warren Bros. Co., Boston, Mass., \$1.90 per sq. yd. for Trinidad or Bermuda asphalt and \$1.96 per sq. yd. for Acme brand asphalt.

Fort Myers, Fla.—Election will be held Sept. 9 to decide on issue of \$200,000 road bonds.

Jacksonville, Fla.—Chief Engineer Smoot has asked for \$40,000 for the purpose of taking care of subsurface conditions on the streets selected for modern paving.

St. Augustine, Fla.—Bids for road work received by the Board are the following: J. Harper Wiley and T. J. Wright, San Mateo; St. Augustine to Hastings, \$1,800 per mile; the contractors to furnish everything. From Hastings to Hurds,

\$1,500 per mile, from Hastings to Byrd \$1,800 per mile. For the five mile stretch north of Bunnell the bid was \$1,600 per mile. They agreed to commence work in 60 days and to complete the work in six months. R. M. Burt of Hastings bid on the road from Hastings to the Putnam county line, from Hastings to Byrd on ruts for single teams, \$6,973. Seth Perkins bid \$2.49 per cu. yd. on the entire contract. W. A. LeGate bid 82 5-16 cts. per sq. yd. on 8 ins. of tamped dead oyster shell, and 70 4-10 cts. per sq. yd. on the same depth of loose shell. C. W. Perkins bid on the St. Augustine-Hastings stretch 59 cts. per sq. yd. for unscreened shell and 63 cts. for screened. On the five-mile stretch north of Bunnell his bid was 65 cts. for unscreened shell and 69 cts. for screened. W. R. Sellers bid St. Augustine to Hastings \$1,580 per mile; Hastings to Byrd \$1,530 per mile; Hastings to the Putnam county line \$1,521 per mile. On the Bunnell stretch, \$1,600 per mile, for the five miles. G. A. Beach bid \$1,300 per mile on the stretch from Elkton to the Putnam county line. Eugene Masters of Elkton bid \$1,150 per mile on the two miles from Deep Creek towards Elkton. Wm. DeGrove of Palm Valley bid on the stretch between the stakes Nos. 1 and 7 at the rate of \$982.90 per mile. On the entire stretch of five miles his bid was \$4,914.50. This is on the St. Augustine-Jacksonville stretch. R. L. Wise bid \$2.85 per cu. yd. on oyster shell and 62 1/2 cts. per sq. yd. on the finished road. On the Bunnell stretch his bid was \$2.92 per cu. yd., or 65 cts. per sq. yd. J. P. Hanley bid 70 cts. per sq. yd., from St. Augustine to Hastings, 68 1/2 cts. on the Hastings-Byrd stretch, and the Hastings-Putnam county line road. On the Bunnell stretch his bid was 67 cts. This bid was based on nothing less than ten miles. An additional ten per cent. is to be added on a smaller contract. W. J. Wier bid on the Jacksonville-St. Augustine stretch \$2.53 per cu. yd.; on the entire work his bid is \$2.41 per cu. yd. W. H. Cochran bid \$1.95 per cu. yd. on the Bunnell stretch, on an 8-in. thick layer of shell.

Augusta, Ga.—Mayor Haynes has been authorized to borrow \$200,000 to continue the levy work.

Muncie, Ind.—Bids for paving Victor st. have been rejected as being too high.

Clinton, Ia.—Council has ordered the paving of portions of Ninth and Tenth ave.

Council Bluffs, Ia.—Bids will soon be asked for 266,000 sq. ft. of cement walk to cost about \$30,000.

Des Moines, Ia.—Plans for improving a number of streets with bitulithic and concrete pavement and curbing has been approved by Council.

Cottonwood Falls, Kan.—Chase county will have \$20,000 to spend on roads.

Fort Scott, Kan.—Mayor C. H. Morrow has approved ordinance for paving part of Ninth st. with brick.

Louisville, Ky.—City Engineer Lyman has prepared plans for street improvements to cost \$200,000.

Covington, La.—Town Council has recommended paving of additional miles of streets.

Donaldsville, La.—Police Jury of Ascension Parish has adopted ordinance providing for public roads. Taxes are provided to cover the cost.

Donaldsonville, La.—First district road committee has obtained figures from Alexandria Gravel Co. for the construction of 26 miles of roads. The Tioga Gravel Co. will also be asked to submit bids.

Lake Charles, La.—City will ask for bids for the construction of about 84,000 sq. yds. of creosoted wood block, brick and asphaltic concrete pavement, with about 6 miles of storm sewers. Bids to be filed about Sept. 7. Address inquiries to C. M. Richard, city clerk.

Baltimore, Md.—Mayor Preston has expressed approval of the plan for widening of St. Paul st. from Lexington st. plaza to Center st. A viaduct may be built as part of the plan which complete will cost about \$1,000,000. Frank N. Joen is chairman of a committee of the merchants' and Manufacturers' Association, interested in the project.

Boston, Mass.—Boston transit commission received bids Aug. 5 for 1,100 q. yds. sheet asphalt and bitulithic on concrete base on Winter street, as follows: Warren Brothers, concrete material \$1.55 a sq. yd. and bitulithic pavement \$1.80 and asphalt \$1.89; John F. Coleman \$1.20, \$2 and \$2.50; John Doherty, \$1.60, \$1.89 and \$2, and the Boston Paving Co., \$1.43, \$1.95 and \$1.95. The merchants of the street advocated wooden blocks; teamsters asks for gran-

ite blocks. The commission decided on bitulithic pavement with asphalt surface.

East Freetown, Mass.—Prospects for building a macadam road from New Bedford city line north to the Lakeville line are said to be very good.

Haverhill, Mass.—Alderman Hood is receiving many replies to his inquiries as to contract prices for resurfacing ten miles of the city streets.

Chisholm, Minn.—Village Council has decided to lay creosoted tamarack blocks on the rest of the streets to be paved this year.

Bernardsville, N. J.—Appropriation totaling \$31,000 will be voted on at the next primary election. Purposes are principally road improvements.

Hackettstown, N. J.—Street committee has been authorized to purchase 2,000 gallons road oil for second application to Main street.

Hillside, N. J.—Township committee has passed ordinance for improving a number of streets with sidewalks and lights.

Lakewood, N. J.—Ocean county will issue \$36,000 in bonds to build the Long Beach road.

Perth Amboy, N. J.—Ordinance has been passed for flag sidewalks on Water street, and approved by Mayor F. Garretson.

Trenton, N. J.—State Road Commissioner Stevens has approved plans and specifications for the building of the Yardville-Windsor and the Hopewell, Mt. Rose and Rosedale Roads. Cost, \$70,000 and \$55,000 respectively.

Batavia, N. Y.—Election to authorize issue of bonds for paving East and West Main sts. has been passed.

Lockport, N. Y.—The proposals received for three improvements were as follows: For grading, curbing and paving of Walnut st., from Cave st. to Lovers lane, C. N. Stainthorpe & Co., Bessemer repressed or Dunn wire cut shale block, \$35,789; Bula repressed shale block, \$35,500. H. P. Burgard Co., Buffalo, Bessemer paving block, \$37,000; C. B. Whitmore Co., Metropolitan or Bessemer shale block, \$36,700; S. V. R. Malcolm & Son, Medina, Tuna valley block, \$37,976. For a complete walk on Walnut st., from Pine to Locust sts: P. F. Niland, \$475; H. E. Whitney, \$498; H. Hornby, \$540; John Irwin, \$45; C. N. Stainthorpe & Co., \$630. For a drain and water pipe in Walnut st., from Elm to S. Transit sts.: C. N. Stainthorpe & Co., \$4,925; C. B. Whitmore Co., \$5,380; F. J. LeValley, \$4,500.

Schenectady, N. Y.—Alderman Noonan has introduced an ordinance for paving Ford street and also laying sidewalks on Grand street.

Tonawanda, N. Y.—The Board of Public Works rejected all bids for the paving of Tremont st. It will again advertise.

Brownstown, Pa.—Borough Engineer O. P. Thomas has been asked to make plans for a number of street improvements.

Chester, Pa.—Ordinance providing for the increase of the indebtedness of the city in the sum of \$18,000, to be used in paying the cost of repaving streets and avenues, the construction of sewers; the purchase of steam fire engines and a hook and ladder truck for the fire department; repairing fire engine and combination hose and chemical wagon; the purchase of property for City Hall purposes; authorizing the creation of a loan and the issuance of bonds for the city of Chester, and providing for the payment of said bonds and for the assessment and levying of a specified tax for the payment of principal, interest and state tax, when due, and making an annual appropriation therefor, was passed on first and second readings.

Conemaugh, Pa.—Ordinance appropriating \$30,000 for pavements and sewers has been passed.

Harrisburg, Pa.—Ordinance providing for the paving of Carrie alley from Cameron to 10th street, passed first reading.

Harrisburg, Pa.—Ordinances for improving several streets have been passed.

Hazleton, Pa.—A petition is to be circulated for signers for paving of West Diamond avenue from Alter to Lincoln streets with amiesite.

Lehighton, Pa.—Council has borrowed \$30,000 for paving First st. with vitrified brick.

Sharon, Pa.—Petition for paving of Silver street is being circulated.

York, Pa.—Ordinance for paving West Market street from West street to Belvidere avenue has been passed.

Lenoir City, Tenn.—At a mass meeting of citizens of Loudon county held at the city hall, attended by representative citizens of the county, steps were

taken to complete the Loudon county part of the Memphis and Bristol highway. B. F. Lively, J. R. Browder and J. W. Russell were appointed by the chairman as a committee to urge Knox county to complete its pike to Loudon county line. The new pike commission assured the meeting that they would build the gap between Lenoir City and the Roane county line. A committee was appointed to urge the present pike commission of Loudon county to rush the work of macadamizing the road from Lenoir City to the Knox county line. F. A. Weiss, chairman of the meeting, was directed to communicate with the Knox county people who are interested in the completion of the highway.

Bonham, Tex.—I. W. Evans, R. T. Lipscomb and E. B. Comstock, represented the Bonham board of trade at the meeting held in Clarksville July 29 to discuss the ocean-to-ocean highway proposition.

Alexandria, Va.—Judge Thornton of the Circuit Court of Fairfax county will be asked to call a special election to issue \$90,000 worth of bonds to improve about thirty miles of road.

Richmond, Va.—Councilman Lumsden has introduced ordinance appropriating \$3,500 for smooth paving of 28th street. Councilman Atkinson has introduced ordinance appropriating \$4,000 for smooth paving of 9th street.

Milwaukee, Wis.—Citizens of the county have offered to raise \$10,000 by subscription to improve the Fox Point road. The county and state will pay \$20,000 additional.

Milwaukee, Wis.—Street paving and concrete sidewalk contracts amounting to \$150,000 have been approved by the commissioner of public works, as follows: Teutonia avenue, from Ring to Nash streets, asphalt paving, Badger Construction Co., \$22,025.98; Twelfth street, from Garfield avenue to Lee street, asphalt pavement, Badger Construction Co., \$6,389.37; Martin street, from Jefferson to Jackson streets, asphalt pavement, White Construction Co., \$2,339.47; 37th street, from Clarke to Center streets, asphalt pavement, Badger Construction Co., \$6,108.26; Orchard st., from 24th to 27th sts., macadam pavement, Henry Hase, \$4,154.80; 25th avenue, from Rogers to Grant streets, grading, Heiden & Harder, 24c. per cu. yd.; 29th avenue, from Greenfield avenue to Lapham street, concrete sidewalks, Milwaukee Sidewalk Co., \$1,505.80.

Racine, Wis.—Street improvement bonds amounting to \$25,000 will be issued.

CONTRACTS AWARDED.

Birmingham, Ala.—Dunn & Lellande were awarded contract for paving of 23d street with bitulithic for \$16,907.

Opelika, Ala.—By city council, for brick pavement to R. M. Hudson, Atlanta, Ga.; the contract for dolarway and hassam pavement was awarded to Jamerson & Hallowell, Montgomery, Ala.

Los Angeles, Cal.—Contract for paving Pacific ave. in San Pedro has been awarded to Fairchild-Gilmore-Wilton Co. for \$159,902.

Ontario, Cal.—E. A. Simmons, Ontario, Cal., was awarded the contract at \$10,919, for paving Ave. A, from San Antonio st. to the west city limits.

Pasadena, Cal.—W. A. Dantaville was awarded contract for work on Brandford st. for \$4,133.

Santa Barbara, Cal.—By City Trustees for paving 4 1/4 miles of streets to Bent & Pennebaker, Los Angeles, Cal., at \$156,021.

Bridgeport, Conn.—Paving and sewers commission has awarded contract as follows: To Wm. H. Arthur of Stamford, \$1.28 for wood without a guarantee. Same on Courtland street at same price. The U. S. Wood Preserving Co. will furnish the blocks on Stratford avenue at \$1.83, making the total cost for that pavement, \$57,424. The Barber Asphalt Co. will supply the blocks on Courtland street at \$1.82, making the total cost of the street \$7,753.

Bristol, Conn.—The Amos Bridge & Sons Co. of Hazardville, have been awarded the contract to build a macadam road 5,318 lin. ft. north from Hop Meadow st. towards the Granby town line.

Hartford, Conn.—Contracts for state road work have been awarded as follows: Town of Sharon, about 11,737 lin. ft. of native stone macadam construction on the Sharon-Millerton road, to W. J. Mertz, Portchester, N. Y.; macadam, \$2.15 per lin. ft.; telford, \$3 per lin. ft.; rubble drain, \$1 per lin. ft.; cobble gutters,

80c. per sq. yd.; concrete walls, \$8 per cu. yd.; masonry walls, \$6 per cu. yd.; dry rubble walls, \$4.50 per cu. yd.; hot asphaltic flush coat, 16c. per sq. yd.; Trinidad liquid oil, 11c. per sq. yd.; town of Chester, about 6,759 lin. ft. macadam construction, to A. Brazos & Sons, Middletown, Conn., \$2.89 per lin. ft. for macadam, \$3.75 for telford, \$1.20 for rubble drain, \$8 per cu. yd. for concrete walls, \$7.50 for masonry walls, \$6 for dry rubble walls; Town of Groton, about 15,987 lin. ft. native stone macadam and graded construction, to A. Vito Construction Corp., Thompson, Conn., for approximately \$26,574.

Hartford, Conn.—Southern New England Paving Co. has been given contract for 3½ miles of paving in West Hartford. The material to be used is a bituminous composition called "Balafite."

Newark, Del.—At the meeting of town council bids were submitted for curb and gutter on North College avenue, 1,324 feet, as follows: B. A. Vandegrift & Co., of Wilmington, \$1,019.14; L. B. Jacobs, \$860.60, and Samuel Little, \$774.50. The contract was awarded to Mr. Little.

Boise, Ida.—Barber Asphalt Paving Co., Spokane, Wash., has been awarded a contract for sheet asphalt with a five-year guarantee for \$76,924. The items of their bid were 26,550 sq. yds. pavement at \$1.59. Street car pavement, 6,920 yds. at \$2.15; concrete curb and gutter, 7,250 ft. at 90 cts.; castings, 90,000 lbs. at 4 cts.; sidewalk, 100 lin. ft. at 60 cts.; curbing, 1,550 ft. at 33 cts. The Barber Co. bid for asphaltic concrete for \$75,735. Warren Construction Co., Portland, Ore., bids for bitulithic, various kinds, ranged from about \$75,000 to \$89,000. Morrison Knudson, Boise, Ida., for Dolorway was \$62,364.

Lincoln, Ill.—By board of local improvements, for improving two streets, to John E. Beetz, Springfield, Ill., at \$24,397. Other bidders were: A. D. Thompson, Peoria, Ill., \$25,996; Bressee & Brown, Decatur, Ill., \$25,776; C. M. Hanes, Jerseyville, \$24,487; H. R. Rhoades Co., Lincoln, \$24,383. W. C. Bates is city engineer.

Lincoln, Ill.—Board of local improvements awarded contract for the construction of 11 blocks of vitrified brick pavement to John E. Bretz, of Springfield, Ill., for \$24,397. The contract for repaving five blocks with creosoted pine blocks on concrete filler awarded to A. D. Thompson, of Peoria, Ill., for \$27,886.

Mendota, Ill.—H. Zolper & Sons, Mendota, awarded the contract for the improvement of streets for \$22,477.

Peoria, Ill.—Board of local improvements awarded contract for paving Wayne street to John McAllister, for \$8,240.

Rock Island, Ill.—Board of local improvements awarded to Tri-City Construction Co. the contract for paving 7th avenue, for \$2.31 per sq. yd. Brick, with a pitch filler.

Rock Island, Ill.—Contract for paving with brick 7th ave., has been awarded by Board Local Improvements to Independent Construction Co., of Davenport, at \$2.31 per sq. yd.

Elkhart, Ind.—The Northern Construction Co. awarded contract for paving Strong avenue, for \$15,807.

Martinsville, Ind.—Fred Cunningham has been awarded contract by the County commissioners Martinsville, for a brick road in Washington township, Morgan county, for \$19,466.

Lexington, Ky.—The Carey-Reed Co. has been awarded contracts aggregating \$100,000 for the construction of brick and asphalt pavement in Lexington.

New Orleans, La.—Hampton Reynolds, city, has been awarded contract for paving with creosoted wood blocks Capdeville street. Prices were: New headers, 50c. per lin. ft.; foundations, \$5.70 per cu. yd.; wooden blocks, \$3.40 per sq. yd.; relaid asphalt, \$3.25 per sq. yd., and relaid granite blocks, 80c. per sq. yd.

Long Island City, L. I.—Contracts have been awarded by Joseph Flanagan, Commissioner of Public Works, for street improvements in the Ridgewater section amounting to almost \$100,000. The awards are as follows: Newman & Carey Co., \$58,685, to regulate and repair with old granite blocks, split and redressed with cement-grouted joints, in Myrtle ave., from the Brooklyn city line to Copeland (Cooper) ave. Charles A. Meyer, \$1,600, for regulating, grading and curbing in Green ave., from Grandview ave. to Forest ave. Uvalde Construction Co., \$11,162, for regulating, grading, curbing and laying sidewalks (where not already laid to grade and in good condition), and paving with sheet asphalt

(permanent) pavement on a concrete foundation in Fresh Pond road from Myrtle ave. to Woodbine st. C. B. Raymond, \$1,095, for furnishing 675 barrels of Portland cement.

Baltimore, Md.—By commissioners for opening streets: For contract No. 125 to the Warner-Quinlan Co., Bid \$18,127.50. Bids on contract No. 124 rejected.

Boston, Mass.—Mayor approved a contract with M. De Matteo for artificial stone sidewalks in Cohasset street, between Corinth and Albano streets, West Roxbury. Bids on this work were opened July 21, and were as follows: M. De Matteo, \$1,711.30; William J. Rafferty Co., \$1,859.45; Warren Brothers Co., \$1,910.20; W. A. Murtfeldt Co., \$1,913.20; Thomas F. Minton, \$2,145.50. Engineer's estimate, \$2,028.

Mayor approved a contract with James Doherty for edgestones, gutters, crosswalks and artificial stone sidewalks in Elmo street, between Blue Hill avenue and Erie street, Dorchester. Bids on this work were opened July 21, and were as follows: James Doherty, \$1,506.98; Warren Brothers Co., \$1,558.40; William J. Rafferty Co., \$1,574.15; Jeremiah J. Sullivan, \$2,164.60. Engineer's estimate \$1,629.

Mayor approved a contract with John McCourt & Co. for grading, edgestones and artificial stone sidewalks in Germany street, between Boylston and Bismarck streets, West Roxbury. Bids on this work were opened July 21 and were as follows: John McCourt & Co., \$2,109.70; M. De Matteo, \$2,125.30; James Doherty, \$2,131.30; William J. Rafferty Co., \$2,418.45. Engineer's estimate, \$2,361.

Mayor approved a contract with D. M. Briggs & Co. for artificial stone sidewalks in Minot street, between Charlemont and Adams streets, Dorchester. Bids on this work were opened July 21 and were as follows: David M. Briggs & Co., \$2,668.40; James Doherty, \$2,736.69; Warren Brothers Co., \$2,872.60; W. A. Murtfeldt Co., \$2,922; William J. Rafferty Co., \$2,932.60; Jeremiah J. Sullivan, \$3,071.80. Engineer's estimate, \$3,011.

Mayor approved a contract with Jeremiah J. McCarthy Co. for tar macadam roadway in Evelyn and Woolson streets, between Blue Hill avenue and Norfolk street, Dorchester. Bids on this work were opened July 21 and were as follows: Jeremiah J. McCarthy Co., \$3,889.80; William J. Barry, \$4,038.10; James Doherty, \$4,168.20; William J. Rafferty Co., \$4,860.50. Engineer's estimate, \$4,132.

Great Falls, Mont.—The contract for paving with bitulithic on First avenue north, has been awarded to the Warren Construction Co. at \$14,374. The same company has also secured contract for laying bitulithic pavement on Second avenue south, between 5th and 7th streets for \$12,629.

Grand Island, Neb.—For improving paving district No. 10, including approximately 24,330 sq. yds. paving, has been awarded to the E. D. Tyner Construction Co. at \$1.91 per sq. yd. Huria W. Kibbey is city engineer. H. E. Clifford is city clerk.

Elizabeth, N. J.—Township committee has let contract to Harry Shallcross, Kenilworth, for concrete sidewalks at his bid of \$456, and to Wilfred A. Cole, Roselle Park, for grading, at \$360.

Hoboken, N. J.—Contracts for paving have been awarded by Common Council as follows: With granite on Ferry st. to Dock Contracting Co., 84 Washington st., and with sheet asphalt on about 13 blocks of Washington st. to Uvalde Asphalt Paving Co., 1 Broadway, New York City.

Rahway, N. J.—Hastings Paving Co. have been awarded a contract for paving Irving st. at \$24,250. Lowest bid for brick pavement was \$21,705.

Ridgefield Park, N. J.—By board of village commissioners for paving Hazelton st. to A. W. Gill, Hackensack, N. J., at \$7,500. Other bidders were: J. S. Harrop, Garfield, N. J., \$7,900; E. Watzel, Dumont, N. J., \$7,850, and D. Napouli, Hackensack, N. J., \$7,400. R. Schweizer is Village Engr. M. D. Stark er is Clk.

Rutherford, N. J.—By Borough Council, for paving Park ave. to John E. Foley, Paterson, N. J., at a total of between \$90,000 and \$95,000. R. M. Watson is Boro. Engr.

Albany, N. Y.—Contract was awarded by the Board of Contract and Supply on July 28 to the North Hudson Contracting Co., at Troy, at \$30,434, for improvement of Delaware ave. from end of present pavement to the city line.

Newburgh, N. Y.—Council has awarded contract for bitulithic pavement on Broadway and Montgomery st. to Warren Bros. Co.

Portchester, N. Y.—Daily & Merritt, Portchester, are low bidders for \$10,000 worth of sidewalks and the Merritt Co., Tuckahoe, were low bidders for Chatsworth ave. improvement.

Rochester, N. Y.—Board of Contract and Supply has awarded contract for paving Genesee st. with wooden blocks to Whitmore, Rauber & Vicinus for \$108,950. Troup st. for \$19,332.

Syracuse, N. Y.—Contracts for paving have been awarded by Board Contract & Supply as follows: With asphalt and sandstone block on Stolp ave. to F. J. Baker, \$69,432, and W. Colvin st., to Guy B. Dickison, Kirk Bldg., at \$10,258.

Westfield, N. Y.—The contract for the improvement of East Broad street, from Chestnut street to the Springfield road, was awarded to the Weldon Contracting Co. by the town council at a regular meeting last night. The bid was \$28,960.16.

Hillsboro, N. C.—Contract has been awarded to Dalby-Nottingham Co., Inc., of Portsmouth, Va., for constructing ten sections of new road from Hillsboro to Mebane, N. C., a distance of about 10 miles.

Columbus, O.—The following contracts have been awarded by State Highway Commissioner James R. Marker, as follows: For concrete, 1.36 miles in Milton, to S. H. Degroot, Youngstown, O., at \$17,269. For concrete, 2.13 miles in Salisbury, to Geo. Bower, Pomeroy, O., at \$17,362.11. For brick, 1.07 miles in Chippewa, to Townsend & Bowen, Cleveland, O., at \$16,928.08. For macadam, 1.54 miles in Elk, to P. Brewer, Chillicothe, O., at \$11,298. For macadam, 1 mile in Pleasant, to J. A. Beatrice, Moxahala, O., at \$8,845. For macadam, 1.38 miles in Harrison, to Boggs & Bowman, Pedro, O., at \$13,770. For macadam, 2 miles in Washington, to Foster Construction Co., Richmond, Ind., at \$12,000. For macadam, 2.95 miles in Gasper, to Foster Construction Co., Richmond, Ind., at \$19,880. For macadam, 1.48 miles in Gilead, to J. W. Scott, Marion, O., at \$13,809.77. For brick, 4.11 miles in Milton, to D. A. Phillips, Ashland, O., at \$62,300.

Dayton, O.—Contract for various street improvements has been awarded to Thomas Bridges' Sons, Wabash, Ind., at \$42,900. Other bidders were: H. P. Streicher, \$44,700 and the Andrews Asphalt Paving Co., \$47,500.

Germantown, O.—W. E. Jones, Eaton, has been given contract for oiling the Dayton pike.

Lockland, O.—By village council, for improving William street from Wyoming avenue to Lock street, to the Kirchner Construction Co., Cincinnati, O., at \$9,166.

Napoleon, O.—Johnson & Ritz, city, was awarded the paving of Monroe street with Wessel brick block.

Spencerville, O.—By village council, paving Broadway to H. S. Enck, Lima, O., at \$51,208.

Upper Sandusky, O.—Contract for paving with asphalt block on Eighth st. was awarded to Asphalt Block Co., of Toledo, at \$17,587.

Wauseon, O.—Contract for paving has been awarded to Jonathan Nofziger, Wauseon, at \$9,794 for 5,227 sq. yds. on slag foundation, Bermudez asphalt binder, cement curb.

Woodsfield, O.—By village council, for paving North street and North Main street, to Hastings & Patton, Woodsfield, O., at \$6,677. Thornberry & Adams bid \$6,974. The contract for paving Sycamore and Church streets was awarded to Otto Mann, at \$7,478. Thornberry & Adams bid \$7,517.

Youngstown, O.—Contracts for five street improvement jobs were awarded by the Board of Control. The successful bidders were Wm. Hynes on Glenwood ave. sewer; M. F. Connelly & Son, Steel st. paving; J. P. Morrison, State st. sewer; Fleming, Hawn & Platt, Chicago ave. paving; Miller Bros., Buckeye st. paving.

Eugene, Ore.—Council has awarded contract for paving all the streets to the Warren Construction Co. at \$1.50 per sq. yd.

Portland, Ore.—Contracts for paving have been awarded as follows: Oregon Independent Asphalt Paving Co., at \$41,230 for bitulithic redress on E. Sixth st. to Pacific Bridge Co., Electric Bldg., at \$54,218 for bitulithic redress on Arthur st. to Jeffry & Bufton, Failing Bldg., at \$45,362 for paving of Ainsworth ave.

Bellevue, Pa.—The contract for the grading and paving of the West Bellevue road was awarded by the Bellevue borough council last night to the M. O'Herron Co. of the Southside, at its bid of \$17,986. The road will be paved with Ligonier block. The paving is to be a joint project between Bellevue and Avalon.

Erie, Pa.—Mayer Bros. were low bidders for paving Ninth st. at \$2.34. J. & M. Doyle were low bidders at \$1.68 for asphalt and \$1.80 for brick for paving 28th st. Ninth st. bids were rejected as too low, others will be considered.

Harrisburg, Pa.—State Highway Commissioner Bigelow has awarded contracts for ten sections of roads as follows: Swatara township, Dauphin county, 1,340 ft. brick block paving, to Stucker Bros. Construction Co., Harrisburg, \$17,075.70; Snow Shoe township, Centre county, 4,975 ft. Telford-macadam, to M. Bennett & Sons, Indiana, \$19,870.38; Haverford township, Delaware county, 5,000 ft. amiesite, to Palmer & Snyder, Wallingford, \$10,386.17.

Scranton, Pa.—Bids for paving have been received as follows: For paving Center street, from Franklin to Penn avenues, the McDonald Co. bid was \$1.93 for asphalt, 39c. for stone and \$1 for circular curbing; the Ruthven bid was \$2.05, 50c. and \$1.75. For Moir court, Vine to Olive streets, the MacDonald firm bid \$1.93 for asphalt, 40c. for stone and \$1.50 for curbing; the Ruthven bid was \$2.05, 50c. and \$1.75, respectively. The bid for paving Albright avenue, Providence to Green Ridge street, follows: MacDonald, \$1.77 and Ruthven \$1.89. Grandview street, Washington to Wyoming: MacDonald \$1.89; Ruthven \$1.95. Phelps street, Washington to Capause: MacDonald \$1.83 for asphalt, curbing 4x24 65c., and curbing 6x24 \$1.50; the Ruthven bid was: \$1.80, 70c. and \$1.75, respectively. Dix court, Center to Spruce streets: MacDonald \$1.93; Ruthven \$2.05. River street, Pittston to Cedar avenue: Ruthven only bidder, stone and asphalt, \$2.40 per sq. yd. Grading Wheeler avenue, Pine to Gibson street, Salvatore Palumbo, \$925. The bids of the Travers Stone Co., which were the only ones received for flagstone laying, follow: River street, Washington to Wyoming, 24c. per sq. ft.; School street, Wayne to Edna, 23c. per sq. ft.; Warren street, Brick to McDonough, 24c.; Stone avenue, Locust to Archibald, 25c.; Prescott avenue, D. L. & W. tracks to Olive street, 25c.; South Main avenue, Locust to Landis, 26c.; Ridge row, Harrison to Arthur, 26c.; Sander son avenue, Cherry place to Marion, 26c.

South Fork, Pa.—O. P. Thomas, borough engineer, has awarded contract to J. T. Murphy for 512 sq. yds. brick paving at 80c., the borough buying the brick at 88c. On Maple street, 2,000 yds. will be laid for 60c., the borough supplying the brick as before.

Uniontown, Pa.—An asphaltic concrete road in Redstone Township, awarded to the Charles T. Eastburn Co., Easton, Pa., at \$25,793.

Waynesboro, Pa.—By Borough Council for paving Main st. and the Public square with brick to Stucker Bros., Harrisburg, Pa., at \$50,253. Other bidders were: Field, Barker & Underwood, Philadelphia, \$52,087; Angle & Clarkson, Hagerstown, Md., \$54,865; Nelson Meredith, Chambersburg, Pa., \$60,190. The contract for the construction of concrete curb was awarded to Pastor Bros., Harrisburg, Pa., at \$3,655. C. A. Birmingham, Carlisle, Pa., is Boro. Engr.

Knoxville, Tenn.—Contracts for road work have been awarded to S. D. Cobb & Co., and J. S. Hodges.

Tyler, Tex.—The road commissioners of the Lindale precinct have closed a contract with R. G. Christian of Americus, Ga., for the building of 75 miles of sand clay and clay-sand roads.

Salt Lake City, Utah.—By Board of City Commissioners for paving Extension No. 87 to G. A. Heman at \$9,694.

Salt Lake City, Utah.—J. P. Moran was awarded two paving contracts, Fifth South from Second East to Fifth East and Seventh South from State to Fifth East. The cost of the first work is \$36,136.77 and of the second \$60,105.80.

Seattle, Wash.—Contract has been awarded by the County Commissioners to Andrew Peterson, of Seattle, for about 6 miles of permanent highway No. 4, at \$149,750.

Racine, Wis.—James Cape & Sons awarded the contract for paving Kinzie avenue with Danville brick, for \$2.15 per sq. yd.

MUNICIPAL JOURNAL

SEWERAGE

Richmond, Cal.—A sanitary district will be formed in the southern part of the city and a sewer system installed. Plans are being drawn. W. S. Farley, engineer, has estimated the cost of \$75,000.

Fairfield, Conn.—Spooner estate will be permitted to make connections with the Dewey street trunk sewer upon payment to the city of Bridgeport of \$3,500.

Monmouth, Ill.—Plans are being considered for the construction of 9,000 ft. of 8 to 2-in. sewers. Cost, \$11,000.

Michigan City, Ind.—The Board of Public Works is considering the proposition to construct a trunk sewer to serve parts of the city not touched by the present system.

Creston, Ia.—Plans are being considered by the City Council for the improvement of the sewer system. The work includes furnishing about 3,570 lin. ft. of 15-in. pipe at an average cut of 4 ft., 5,306 lin. ft. of 12-in. pipe at an average cut of 5 ft., 810 lin. ft. of 10-in. pipe at an average cut of 7 ft., 900 lin. ft. of 8-in. pipe at an average cut of 8 ft., and 420 lin. ft. of 6-in. pipe at an average cut of 9 ft.

Louisville, Ky.—The Board of Public Works is surveying for a sewer to be built in Coral ave. for a distance of several blocks.

Attleboro, Mass.—Bonds for \$50,000 have been sold for the construction of sewers at Attleboro.

Manchester, N. H.—Resolution has been passed authorizing a \$100,000 bond; \$65,000 for macadam and \$35,000 for sewers.

Schenectady, N. Y.—Alderman Burns has presented an ordinance directing the laying of a sanitary sewer in Wing street.

Cincinnati, O.—Department of Public Service has decided to go ahead as rapidly as possible with its Mill Creek sewer plans, which will cost about \$300,000. It will also build a Madisonville sewer system, a Clifton system, and a new outlet for the Westwood system. Total cost, over \$1,000,000.

Mount Vernon, O.—The State Board of Health has approved plans for the construction of a sewage disposal plant for Mount Vernon. Estimated cost, \$42,000.

Salem, O.—The two lowest bidders on the big sewer contract between Newgarden street and Ohio avenue, Frank Munella, Niles, at \$16,286.75 and John Wilson, Alliance, at \$16,496.35, wanted to take the job at the estimated cost of the construction, \$15,505. It was decided, however, to readvertise.

Brownstown, Pa.—Borough Council will construct large storm sewer on Gilbert st.

Harrisburg, Pa.—Bricker of the Ninth ward introduced an ordinance providing for a sewer in Mulberry street between 17th and 18th streets.

Galveston, Tex.—Tim Sullivan, A. L. Pierson and others plan to start a campaign for free sewerage in Galveston, according to a recent announcement. A petition calling for a vote of the people on the question of a charter amendment which will provide free sewerage is to be circulated. They will circulate the petition under the provisions of the new home rule law, which gives cities the right to change or amend their charters.

Richmond, Va.—City Engineer Bolling has reported to the administrative board on the plans for installing a sewerage system in the northeastern section of the city at a cost of \$54,000.

Kenosha, Wis.—City Attorney J. C. Slater has prepared ordinance for the issue of bonds for building the north side trunk sewer.

CONTRACTS AWARDED.

Washington, D. C.—By commissioners of the District of Columbia, for the construction of the following sewers in the district: Macomb street sewer, George Hyman, Washington, D. C., ordinary excavation, 20c.; concrete masonry "B" \$7.75; vitrified brick masonry, \$20; sewer brick masonry \$14. Naylor road sewer, Warren F. Brenizer Co., Washington, D. C., ordinary excavation, 50c.; piling, 16c. per lin. ft.; lumber, \$45 per thousand; concrete masonry, \$6.75; vitrified brick masonry, \$21; sewer brick masonry, \$13.

Oliny, Ill.—Contract has been awarded by the Board of Local Improvement to Hoeffken Bros., of Belleville, for constructing a sewer system and sewerage treatment plant at \$79,490.

Decatur, Ind.—Meyers & Meyers were awarded the contract for the construc-

tion of a sanitary sewer at Geneva, Ind., for \$18,570.

Huntington, Ind.—Eberhart & Woodrow awarded the contract for the construction of a sewer in Leopold street for \$2.43 per lin. ft.

Council Bluffs, Ia.—City council awarded contract for two miles of new sewer to E. A. Wickham & Co., at the following prices: 6-in. sewer, 48c. a ft.; 8-in., 54c.; 10-in., 69c.; 12-in., 74c. and 15-in., 98c.; manholes, \$35 each.

Odebolt, Ia.—M. A. Camery, Harlan, awarded the contract for the proposed sewage system, for \$19,044.

Boston, Mass.—Contract for the construction of a sewer in Anawan avenue, West Roxbury Parkway, Martin and Stratford streets, West Roxbury, has been awarded to the Henry Spinach Contracting Co., at \$38,315. Other bids were: Anthony Cefalo, \$39,002; William J. Barry, \$40,451; Charles R. Gow Co., \$42,867; McCarthy & Walsh, \$46,090; Long & Little, \$47,057; M. De Sisto & Co., \$47,620; A. G. Tomasello, \$49,102; Anthony Baruffaldi, \$51,841.

Boston, Mass.—Mayor approved a contract with William L. Dolan for sewerage works in Oakland street, between Faneuil and Washington streets, Brighton. Bids on this work were as follows: William L. Dolan, \$9,893.40; Anthony Cefalo, \$10,304.60; A. J. Tomasello, \$11,000.95; George J. Regan, \$11,402.25; Anthony Baruffaldi, \$11,671.79; Timothy Coughlin, \$11,801.30; John McCourt & Co., \$12,329.50; McCarthy & Walsh, \$12,590.50; M. De Sisto & Co., \$12,652.75; Michael Russo & Son, \$14,464.63; Daniel Di Pietro, \$14,540.65; R. Cartullo, \$14,560. Engineer's estimate, \$10,980.60.

Boston, Mass.—Mayor approved a contract with Epping-Carpenter Co. for furnishing and erecting automatic electric sewage pumping plant, Item B, in proposed pumping station at Union Park and Albany streets, city proper. Bids on this work were opened June 19 at 12 m. Other bidders were: R. D. Wood & Co., Allis-Chalmers Manufacturing Co., Alberger Pump & Condenser Co., Platt Iron Works, Power Equipment Co., Blake & Knowles Steam Pump Works.

Swampscott, Mass.—The town board has let contract for sewers and pipes to James Lyons, at \$1.45 for rock, per ft. and 18c. for earth per foot on Banks' terrace, and 50c. for rock and 20c. for earth per foot on the latter.

Grand Rapids, Mich.—Contracts have been awarded to B. Medendorph for sewer on 18th st. at \$2,032. To J. J. Rens, Quinby st. sewer, \$1,969.

Fairmont, Minn.—By City Council, for sewer construction of various streets to J. W. Turner & Co., Des Moines, Iowa, at \$19,746.

Great Falls, Mont.—By Council, for construction of a drainage system in Third and Fourth aves., to Hanlon & Oakes, Fargo, N. D., at \$13,746.

Helena, Mont.—The contract for the construction of a storm sewer in Beatrice st. has been awarded to Adami Bros. at \$8,651.

St. Joseph, Mo.—Board of public works has let the contract for a sewer in Madison street to E. F. Mignery, for about \$5,000.

Glens Falls, N. Y.—By village trustees for the construction of a sewer system, to Sherman & Co., at \$5,006.

Newburgh, N. Y.—Jova & Kehoe, Inc., have been awarded sewer contract at \$2,140.

Rochester, N. Y.—John Petrossi has been awarded contract for Manhattan st. sewer at \$929.

White Plains, N. Y.—Contract for sewer has been awarded to Frank Cescone at \$9,139. Other bids were David Richards, \$10,069; Merritt Con. Co., \$9,921.50; Edw. Jackman, \$9,500.40.

Bexley, O.—By council, for the construction of a municipal sewage-treatment plant, to Cooke & Cooke, Clintonville, O., at \$17,200.

Lowellville, O.—McDermott & Hannan were low bidders for 9,000 ft. storm sewers.

Marion, O.—By board of control, to P. Drake & Sons, at \$12,211, contract for the construction of the Moss alley sewer.

Salem, O.—When the bids for the intercepting sewers were opened two of the contracts were awarded to local bidders, Buell & Baker, who were successful on the two smaller contracts. The larger job was not let, as all the bids were above the estimate, and this will have to be readvertised. The following were the bids received on the sewer from Newgarden to Ohio avenue, or the main contract in the building of the intercepting sewers: Frank Munella, Niles, \$16,286.75; John Wilson, Alliance, \$16,496.35; Ross & Cook, \$19,035.90. The estimated cost for the construction of this

sewer was \$15,595; the lowest bid being \$781.75 higher than the estimated cost. The next largest contract is for the Broadway and Franklin avenue intercepting sewer, there being four bids received on this, and of this number Buell & Baker of this city were the successful bidders when their bid was below the estimated cost of the sewer. Their bid was \$1,669.85 or \$121.30 below the estimate. The smallest job of the lot is the intercepting sewer in Lincoln and Euclid avenues, and again Buell & Baker had placed their bid below the estimate cost for this job. For this sewer but two bids were received, one from Ross & Cook, Elyria, at \$549.60; and the other from Buell & Baker at \$462.43. The estimated cost was \$517.15, making Buell & Baker's bid \$54.72 below the estimate.

Portland, Ore.—Contracts for constructing concrete trunk sewer on East Selwood st. is reported awarded by the City Commissioners to the Jabosen-Bade Co., East 21st and Spokane sts., at \$100,000.

Chester, Pa.—A. Wilson Oliver has been awarded contract for sewers as follows: Eagle street, 6th to 9th, 8-in. terra cotta sewer, 71c. per ft.; Y branches 34c. each; 15-in. sewer, \$1.08 per ft.; Y branches 68c.; manholes, \$29.50; rock, \$3.90 per cu. yd. Butler, 6th to 9th, 8-in. sewer, 69c. per ft.; Y branches 34c.; manholes \$29.50, rock \$3.90 per cu. yd. Engle street, 2d to 3d, 8-in. sewer 63c., Y branches 34c., manholes \$29.50, rock \$3.90 per cu. yd. Engle street, 2d to Front, 8-in. sewer 75c., Y branches 34c., manholes \$29.50, rock \$3.90 per cu. yd. Engle street, Front to Delaware avenue, 8-in. sewer 69c. per ft., Y branches 35c., manholes \$29.50, rock \$3.90 per cu. yd. Wilson street from a point 322 ft. north of 4th street to 6th street, 8-in. sewer 65c. per ft., Y branches 34c., manholes \$29.50, rock \$3.90 per cu. yd. Wilson street, 3d to 4th, 8-in. sewer 67c. per ft., Y branches 34c., manholes \$29.50, rock \$3.90 per cu. yd. Rose street, Walnut to Chestnut, 8-in. sewer 86c. per ft., Y branches 34c., manholes \$29.50, rock \$3.90 per cu. yd. 9th street, from end of present sewer to city line on the west, 8-in. sewer, 69c. per ft., Y branches 34c., manholes \$29.50, rock \$3.90 per cu. yd. The contracts for the Mary street sewer and the sewer on 7th street Madison to Crosby streets, were not awarded. M. Honan, Jr., John Hanna Sons and E. H. Oliver were the other bidders for the work.

McKeesport, Pa.—Following small sewer jobs have been awarded: To Orville Haugh, \$144; D. W. White, \$492; D. W. White, \$290; Orville Haugh, \$402; Bauman Bros. Co., \$2,101.

Pottstown, Pa.—Contract for first section of sewer system was awarded to Willauer & Co., city, for \$88,121.

Williamsport, Pa.—Contract for sewer in Erie avenue has been awarded to John C. Schrade, Inc., at \$5,164.

Austin, Tex.—Contracts for sewers have been let as follows: No. 10 lines in East Austin, F. T. Horton, \$5,553.62; No. 11, lines in East Austin, Johnson & Carr, \$2,357.85; No. 12, lines in Tenth ward, F. T. Horton, \$2,057.70; No. 13, South Austin system, Johnson & Carr, \$7,827.25; No. 14, lines in North Austin and Hyde Park, Johnson & Carr, \$4,024.25.

Houston, Tex.—The City Council has awarded a contract for the construction of a sewer in McGowan ave., to Horton & Son, Houston, at \$15,700.

Houston, Tex.—Contract has been awarded by City Council to Horton & Horton, of Houston, for constructing McGowan ave. storm sewer, at \$15,701.

Salt Lake City, Utah.—J. B. Mullins was awarded the contracts for four small sewer extensions and one sidewalk extension.

Richmond, Va.—Contract has been awarded to A. W. Maynard for sewer under Southern Railway tracks, from Gillies Creek to National Cemetery Road at \$5,707.

North Bend, Wash.—Contract for constructing a storm sewer on Kendrick st. has been awarded to the Consolidated Contract Co. of Portland, Ore., at \$21,701.

Milwaukee, Wis.—Board of public works has awarded contract for the construction of the First avenue-Cleveland avenue-Dakota street relief sewer, at about \$17,000, to Michael Synowitz.

New London, Wis.—Contract for the construction of sewers in various streets has been awarded to Mulholland, Kuehn & Co., Kaukauna, Wis.

WATER SUPPLY

Tucson, Ariz.—An election will be held Sept. 2 to vote bonds for \$150,000 for an extension of the water system.

Albany, Ga.—At a recent election the city voted bonds for \$12,000 for extending the water system. H. A. Traver is Mayor and R. J. Edgerly, City Engr.

Waukegan, Ill.—Bids were received for constructing an emergency water intake in the harbor as follows: W. H. Wheeler, Beloit, Wis., \$7,800; E. W. Kremer, Muskegon, Mich., \$9,190; A. N. Johnson, Chicago, Ill., \$9,290; Joseph G. Falcon, Evanston, Ill., \$10,400; M. J. Douthitt is city engineer.

Richmond, Ind.—Public Utility Commission has notified the Richmond City Water Co. to file a complete inventory of their property.

Mount Ayr, In.—Citizens have voted to issue \$45,000 bonds for constructing a waterworks. The specifications submitted by E. T. Archer & Co., the architects employed by the city council, calls for a reservoir to be constructed about 2½ miles east of the city, from which the water will be pumped.

Anchorage, Ky.—The Louisville Water Co. has agreed to furnish water service to Anchorage if that municipality will lay its own mains and build a pipe line to connect with the company's main near Lakeland. The town, it developed, has decided to vote on a bond issue of \$25,000 August 30, to determine its course.

Louisville, Ky.—Bids for filter beds to cost \$200,000 will soon be asked for by the Louisville Water Company.

Catskill, N. Y.—Village is making certain improvements to its water supply system. Henry W. Taylor, of 100 State St., Albany, N. Y., is consulting engineer.

Fulton, N. Y.—Election will be held August 28 to vote on \$30,000 bond issue for concrete stand pipe.

Lockport, N. Y.—Water Board has been directed to advertise for bids for 12-in. main in Walnut st.

Newburgh, N. Y.—Board of Water Commissioners have accepted proposition of R. J. Hardy, Consulting Engineer, Poughkeepsie, to construct a plant to treat the water supply with chlorine.

Schenectady, N. Y.—Alderman Fahey has offered a resolution approving the proposed agreement modifying the contract dated Dec. 21, 1913, for the installation of pumps for the city water system and the furnishing of electric current for the operation of the same, and authorizing the execution thereof by the mayor.

Watervliet, N. Y.—City officials are considering the purchase of ground on the hills of Colonie for a municipal water works.

Raleigh, N. C.—Board of public works has received bids for the construction of a dam at the proposed impounding reservoir on the land of the Central Hospital, as follows: Porter & Boyd, Charlotte, N. C., \$13,750; W. H. Honeycutt, Raleigh, \$16,925; Thompson & Moseley, Greensboro, N. C., \$14,020; C. W. Requart, Charlotte, N. C., \$16,520; J. A. Gourley, Jacksonville, Ala., \$14,180.

Hamilton, O.—City will sell \$30,000 waterworks improvement bonds on August 19.

Springfield, O.—Water department has received bids for the construction of a belt line distributing water system as follows: T. H. Igelhart, \$90,129; Fidler & Brock, \$91,468; Fred J. Krumholz, \$93,888; R. J. Kavanaugh, \$95,252; McHugh Bros., \$95,621. George S. Cotter is superintendent of waterworks.

Toledo, O.—Bonds amounting to \$150,000 will be sold and the proceeds applied to the extension of mains and continuing improvements at the pumping station.

Lawrence, Okla.—Engineer McFarland, Dewey, Okla., has prepared plans for \$12,000 water works.

Perry, Okla.—The proposition to issue bonds for \$25,000 for the improvement of the water system and the installation of a filtration plant is under consideration.

Coatesville, Pa.—Council has authorized election to vote on loan of \$185,000 for water supply.

Patton, Pa.—Petition is being circulated asking council to purchase the plant of the Patton Water Co.

Philadelphia, Pa.—Chief Davis of the water bureau is making plans for replacing wooden valve boxes with concrete, cost \$300,000.

Steelton, Pa.—At the election Nov. 4 bond issues of \$8,000 for water mains, \$35,000 for paving and \$12,000 for municipal hospital will be considered.

Kimball, S. D.—Bonds for \$15,000 have been voted for the purpose of constructing a municipal water system. Olson & Rasmussen, Kimball, are Engrs.

Big Springs, Tex.—The municipal water-works plant and distributing system here will be reconstructed and enlarged. Several additional miles of mains will be laid.

Corpus Christi, Tex.—City will lay a 20-in. water main from standpipe to pumping plant, costing approximately \$100,000.

Galveston, Tex.—The City Commission has ordered an election to be held Sept. 30 to vote on the proposition of issuing \$150,000 of bonds for increasing the municipal water supply and extending the sewer system.

Olympia, Wash.—At a recent election bonds for \$150,000 were voted for the purpose of constructing a municipal water system. I. N. Holmes is City Clk. J. B. Weddell, City Engr.

Quincy, Wash.—Bonds for \$200,000 for the completion of the preliminary surveys for the Quincy Valley Irrigation project have been voted.

CONTRACTS AWARDED.

Anaheim, Calif.—For installing and laying 11,090 ft. of c.-i. water pipe, awarded to C. E. Chamberlain, Anaheim, at 15¾ cts. per ft.

Hayden, Colo.—The contract for the construction of a water-works system has been awarded to J. C. Schwartz, Colorado Springs, Colo.

Washington, D. C.—Contract for 2,370 tons c.-i. water pipe has been awarded to the Lynchburg Foundry Co. of Lynchburg, Va., at \$20.69 per net ton.

Milton, Fla.—Walton & Wagner, Atlanta, awarded the contract for water-works system, electric light and sewerage plants, for \$36,416.

Rome, Ga.—Following bids for water works equipment have been accepted: Electrical driven pumps, \$3,180, from Platt Iron Works; boiler, \$2,271, and feed pump, \$474.85, from Walsh & Weidner; stack, \$1,862; meter, \$625; total, \$8,742.

Volmer, Ida.—Village trustees awarded contract to Sandberg & Beaman of that place, to drill a well for the proposed \$10,000 waterworks system.

Waukegan, Ill.—W. H. Wheeler, Beloit, Wis., has submitted lowest bid for construction of 600 ft. of 24-in. or 36-in. cast iron pipe as an emergency intake in the harbor, at \$7,800 and \$9,900, respectively.

Chautauq, Kan.—By council, for the construction of a filter plant, to the Pittsburgh Filter Co., Pittsburgh, Pa., at \$15,000.

Monroe City, Mo.—The Commercial Construction Co., Kansas City, Mo., has secured the general contract for the construction of the waterworks for \$27,000, bids being opened July 31. Other contracts let were: H. B. Watters & Son, St. Louis, Mo., \$7,543; Chuse Engine & Mfg. Co., Mattoon, Ill., engine, \$1,905; Pittsburgh Filter Mfg. Co., Pittsburgh, Pa., filter, \$3,232; Fort Wayne Electric Works, Fort Wayne, Ind., electrical equipment, \$6,158; Merkle-Heines Machine Co., Kansas City, Mo., pumps, \$3,050; Western Valve Co., Chicago, boiler, hydrants and valves, \$1,499; American Cast Iron Pipe Co., Kansas City, Mo., cast iron pipe, \$1,597; Memphis Steel Construction Co., Memphis, Tenn., tower and tanks, \$3,575.

Boston, Mass.—Mayor approved a contract with Anthony Baruffaldi for laying and relaying water pipes in Saratoga, Bennington, Breed, Antim and Emmons streets East Boston. Bids on this work were as follows: Anthony Baruffaldi, \$2,028; M. De Sisto & Co., \$2,110; John T. Shea, Jr., \$2,114.75; Charles M. Callahan, \$2,132.50; R. Cartullo, \$2,360.50; A. G. Tomasello, \$2,419.50; Thomas Burke, \$3,190. Engineer's estimate, \$2,192.

Boston, Mass.—The contract for furnishing 410 high-pressure fire service hydrants has been awarded to the A. P. Smith Mfg. Co., Newark, N. J., at \$63.90 each. Other bids were: Coffin Valve Co., \$86.50; Kennedy Valve Mfg. Co., \$91.80; Florence Iron Works, \$98; Pittsburg Valve Foundry & Machine Co., \$108.

Delano, Minn.—By village council, for the extension of the water system, to W. D. Lovell, Minneapolis, at \$6,700.

Worcester, Mass.—Bids were received July 28 by the Mayor for furnishing 5,000 ft. of 12-in. c.-i. water pipe for the Water Department, as follows: United States Cast Iron Pipe Co., Philadelphia, Pa., \$22.30 per ton (awarded contract); Standard Cast Iron Pipe Co., \$22.50; Charles Miller & Son Co., \$24.35; Warren Foundry & Machine Co., \$24.50.

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Great Falls, Mont.—For furnishing 20,000 lbs. of pine specials and 200 tons of c.i. pipe for the water system, has been awarded to the U. S. Cast Iron & Foundry Co., Chicago, Ill., at \$7,840.

Twin Bridges, Mont.—By Town Council, for the construction of a water system, to C. N. Cochran, Spokane, Wash., at \$14,947.

New York, N. Y.—Bids were received by the Board of Water Supply, Aug. 5, for Contract 89, constructing the Silver Lake Reservoir and appurtenances, Richmond, New York. The reservoir will be about 2,400 ft. long and 1,200 ft. wide, formed by earth embankments to close depressions, and there will be four earth dikes, one of which will be lined with concrete. The tunnel will be about 1,300 ft. long, 10 ft. high and 6 ft. wide, and will contain two horseshoe-shaped conduits. The lowest bid was submitted by the Beaver Engineering & Constructing Co., 51 Chambers st., at \$821,130.

New York, N. Y.—Bids were received by the Board of Water Supply, July 22, for constructing five superstructures for the Elmsford, Fort Hill and Bryn Mawr siphon chambers along the Catskill Aqueduct, as follows: Joseph Balaban Co., 261 Broadway, New York, \$79,000 (awarded contract); George B. Wills, 101 Park ave., New York, \$80,855; A. L. Guldine & Co., 131 East 23rd st., New York, \$81,375; Peekskill Granite Co., Peekskill, N. Y., \$89,786; Richard Carvel Co., 101 West 59th st., New York, \$91,200. Noted July 10.

Bids were received by the Board of Water Supply, July 22, for Contract 70, furnishing valves and appurtenances for the city tunnel of the Catskill Aqueduct, as follows: Paul S. Reeves Co., Philadelphia, Pa., \$162,788 (awarded contract); Kennedy Valve Co., Elmira, N. Y., \$168,187; Coffin Valve Co., Boston, Mass., \$178,872; Chapman Valve Co., Indian Orchard, Mass., \$179,785; A. P. Smith Mfg. Co., East Orange, N. J., \$192,987; William Cramp & Sons Ship & Engine Building Co., Philadelphia, Pa., \$193,927; Pittsburgh Valve Foundry & Construction Co., Pittsburgh, Pa., \$199,848 Bethlehem Steel Co., South Bethlehem, Pa., \$210,000; Coldwell-Wilcox Co., Newburgh, N. Y., \$298,074. Noted July 10.

Niagara Falls, N. Y.—Five contracts for water mains were awarded by the Water Board. Callahan & Shepard was awarded the contract for a main in North ave., from 13th to Lockport st., at their bid of \$1,877.50. Charles T. Shepard was given four contracts as follows: Weston ave., from 15th to 16th st., and from 18th to 22d st., \$921.25; Mackenna ave., from 19th to 22d st., and Jerauld ave., from 21st to 24th st., \$1,142.50; Evershed st., 160 ft. from Sugar st., \$125.80; along Erie Railroad tracks, in Portage road, from Michigan ave. to Lockport st., \$642.25.

Raleigh, N. C.—The city has arranged for the construction of two concrete filters with Tucker & Laxton, of Charlotte, at \$3,400 for the pair, and they will be placed at the south end and inside of the present filter house.

Lima, O.—By council for laying a 20-in. water main in South Lima, to F. R. Stone, Lima, at \$7,000.

Youngstown, O.—Board of control has awarded contract for Milton dam to Louis Adavasio & Co. at \$469,600.

Philadelphia, Pa.—Contracts have been awarded by the Department of Public Works for work as follows: Contract 220, connections to 36-in. discharge pipe, Geo. Hill Reservoir, A. P. Smith Mfg. Co., East Orange, N. J., \$985; Contract 221, valves for West Philadelphia pipe line, Kennedy Valve Co., Elmira, N. Y., \$1,792.50; Contract 224, iron smoke stack for Mingo Creek Pump Station, Quaker City Iron Works, Richmond and Tioga st., Philadelphia, \$123; beam for No. 6 pump at Belmont, Southwark Foundry & Machine Co., 430 Washington ave., Philadelphia, \$629.

Westmount, Que.—Contract is reported awarded to R. T. Smith & Co., Montreal, for construction of a conduit on Western ave., estimated at \$25,000.

Woonsocket, R. I.—Water commissioners have awarded contract to Simpson Bros., Boston, Mass., for a concrete water tank of 1,500,000 gallons capacity at \$23,514.

McColl, S. C.—Public works commission and sewerage commission have awarded contracts for waterworks, electric light and sewerage system as follows: Light and water plants, Dysard Construction Co., Atlanta, Ga.; sewer system, Berghaus & Fairley, Orangeburg, S. C.

Milwaukee, Wis.—Contract has been awarded by the Board of Public Works to the Allis-Chalmers Mfg. Co. of Mil-

waukee, for furnishing and installing at the north point pumping station on the shore of Lake Michigan, near the end of North ave., 18th Ward, a 12,000,000-gal. pumping engine at \$74,200.

LIGHTING AND POWER

Los Angeles, Cal.—Plans are under consideration for the ornamental lighting of 16 miles of asphalt boulevard by the Suburban Home Co. at a cost of \$500,000, and dedicated to the public.

Nokomis, Ill.—According to press reports, the City Council is considering the construction of a municipal electric light plant.

Indianapolis, Ind.—An investigation of the cost of electric street lighting is being made by City Engineer Klausmann. The existing contract will expire in 1915 and a new contract for ten years will probably be made at that time. C. A. Schrader, president of the board of works, is inclined to advertise for bids for the new franchise within a short time. His only objection to this is that it might be considered as usurping the right of the succeeding board.

Portland, Ind.—City Council plans to erect a power-house for the municipal lighting plant, and to install additional equipment.

Tipton, Ind.—Plans to renew the municipal lighting system and to rebuild the wiring system are being considered. Arthur C. Herrin is Supt. of the municipal lighting plant.

Pomeroy, Ind.—Citizens have voted in favor of issuing bonds for \$15,000 for the purpose of installing an electric-light system at Pomeroy.

Marion, Kan.—The city contemplates the installation of steam equipment in its water and light plant.

Peabody, Mass.—A fire in the municipal electric lighting plant is said to have destroyed generators, engines, dynamos and switchboard.

Geneva, N. Y.—The Empire Gas & Electric Co. will lay 10,000 ft. of 4-in. gas mains in the village of Phelps, a few miles north of that place, within a short time. This is one of the many places which have had the electric service of the company, but not the gas service. Gas will be supplied through mains running from city. Some of the other towns to be supplied from here are Newark, Clyde, Lyons and Palmyra.

Groton, N. Y.—The Board of Water & Light Commissioners plans to replace the wires of the distribution system. Materials will be purchased within the next few months. Charles O. Rhodes is Clerk.

Lestershire, N. Y.—Negotiations are about to be opened with the Lestershire authorities for a franchise to operate a power and lighting plant.

Schenectady, N. Y.—Ordinance has been introduced providing for flaming arc lamps on State st., between Crescent park and Canal.

Weedsport, N. Y.—Press reports state that the Board of Trustees has applied to the Public Service Commission to erect an electric plant in Weedsport.

Akron, O.—Estimates of the cost of placing iron light poles and equipping them with tungsten lights are being prepared.

Columbus, O.—The city has made an appropriation of \$25,000 for additions and extensions to the municipal light plant and lighting system.

Oakharbor, O.—An election will soon be held to vote on the proposition to issue bonds for a municipal lighting plant.

Toledo, O.—A number of resolutions have been passed providing for electric lighting in various streets.

Steleton, Pa.—Prompted by some adverse sentiment among the constituents over the action of the new company now furnishing electric current in the borough in raising its rates Aug. 1, just one month after taking over the stock of the local concern, Councilman Lewis of the Fifth ward has begun a controversy before council which might result in their erecting a municipal electric plant.

Providence, R. I.—Installation of the powerful new street lights will be extended to the residential section.

CONTRACTS AWARDED

Reidsville, Ga.—The contract for the installation of a municipal light plant has been awarded to the Modern Equipment Co., Savannah, Ga., at \$6,000.

Rome, Ga.—Contract for lighting the streets and public buildings has been awarded to the Rome Railway & Light Co.

Ellsworth, Minn.—Jaeger Bros., Dyersville, Ia., awarded contract for electric lighting system at \$8,950. Fairbanks-Morse Co. will furnish the 50-H.P. engine; Fort Wayne 3-W generator, Electric Storage Battery Co., will furnish battery switchboard and pole line.

Mayville, N. D.—Contract is reported awarded to the Northwestern Electric Equipment Co., of St. Paul, Minn., for a new municipal steam power plant and pumping station, at \$31,000.

Chambersburg, Pa.—The contract for the installation of ornamental street lamps in Chambersburg has been awarded to the J. C. Schaff Electric Co., at \$7,945.

Harrisburg, Pa.—The contract for the arc lights in the business section of the city was approved. The Harrisburg Light & Power Co. has been awarded the contract, which will be in force for nine years.

Norfolk, Va.—The contract for installing a steam heating and ventilating system in the new 10-room addition to the James Monroe school was awarded to Augustus Williams yesterday for \$8,000, the next lowest bid being \$8,150.

FIRE EQUIPMENT

Clinton, In.—Council has ordered the building of a new fire station at Lyons to cost \$8,000.

Louisville, Ky.—Council has recommended the Board of Public Safety to purchase a pulmotor.

Louisville, Ky.—Board of Public Safety has decided to purchase motor combination hose and chemical engine for the new fire house at 37th st. and Broadway.

Boston, Mass.—The first section of high pressure pipe for fire protection will be laid in Winter street at once. A large amount of the work planned will be done before winter.

Hackettstown, N. J.—The fire committee was authorized to advertise for bids for a "hose jumper" for the use of fire department, to replace the one that was broken at fire on July 4.

Roselle, N. J.—Town Council has decided to purchase Robinson fire apparatus for \$8,500.

Orangeburg, N. Y.—A fire company and district will be established.

Waterloo, N. Y.—Chief Silvers Van Riper has petitioned village board for new hose.

Youngstown, O.—Ordinance to issue \$15,000 bonds to purchase an 85-ft. aerial ladder truck has been introduced.

Pittsburgh, Pa.—Director Dailey of the public safety department has requested passage of an ordinance authorizing the sale of the remaining bonds for motorizing the fire department. Ordinance has been passed to purchase 9 automobiles for the assistant fire chiefs, 12 auto propelled tractors, and about 10 auto propelled combination and chemical hose wagons.

CONTRACTS AWARDED

Wilmington, Del.—Members of the purchasing committee of the Brandywine Fire Company have signed contracts for two fire apparatus that will eliminate horses entirely in that company. The company ordered an auto combination chemical engine and hose wagon from the United States Fire Apparatus Co. of this city and a front tractor for its steam engine from the Christy Front Tractor Co. of Hoboken, N. J. The former apparatus will cost \$4,000 and the tractor \$4,250.

Pensacola, Fla.—At a special meeting of the board of city commissioners contracts were awarded for furnishing 2,000 feet of fire hose, has awarded contracts as follows: Eureka Fire Hose Co., 1,000 ft. at \$1 per ft.; Boston Woven Hose & Rubber Co., 500 ft. at 90c. per ft. and the Manhattan Rubber Mfg. Co., 500 ft. at 90c. per ft.

Gloucester, N. J.—Contract has been awarded to Robinson Fire Apparatus Co. for a motor pumping engine at \$7,200.

BRIDGES

Bath, Me.—Plans for a \$60,000 girder bridge have been drawn for the County Commissioners. Plans for another style would cost \$70,000. Plans by E. E. Greenwood, of Skowhegan, for a steel bridge with concrete piers would cost \$77,000. Plans on file with the Clerk, F. H. Thompson.

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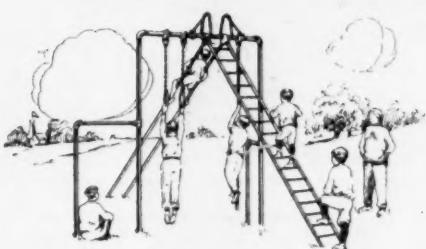
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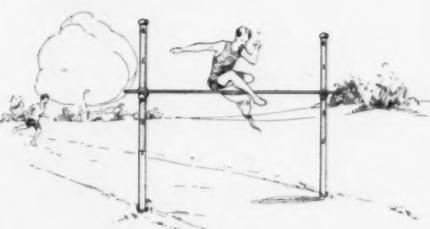
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TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Mont., Billings	8 p.m., Aug. 19..	Paving sidewalks.....	L. E. Torrence, City Clk.
Pa., Lansdowne	8 p.m., Aug. 19..	Curbs and gutters	J. M. Davis, Secy.
Tex., Galveston	11 a.m., Aug. 25..	Mud shells, 5,000 cu. yds.	J. M. Murch, Co. Auditor.
N. H., Concord	1 p.m., Aug. 25..	Gravel roads	S. P. Hooker, Supt. Hy.
Utah, Bingham City	Aug. 29..	Sidewalks	City Council.
Fla., Miami	7.30 p.m., Sept. 1..	Sheet or block asphalt, wood bitulithic or brick.....	Mayor.
SEWERAGE				
Okl., Henrietta	6 p.m., Aug. 18..	Sewerage system	T. S. Williamson, C. Clk.
R. I., Central Falls	noon, Aug. 20..	Disposal plant	O. P. Sarle, Engr.
Wis., Racine	Aug. 23..	Sewer and pavement	Bd. Pub. Wks.
Wis., Racine	Sept. 6..	Pavements and sewers.....	Bd. Pub. Wks.
WATER SUPPLY				
Fla., Jacksonville	Sept. 15..	Pumping engines, 12 and 15 million gals. capacity.....	C. L. Carroll, Supt.
Pa., Philadelphia	Aug. 19..	Rubber valves	H. Loeb, Dir.
Pa., Blairstown	6 p.m., Aug. 22..	Cast-iron pipe, 43,000 ft. 10-inch.....	J. R. Wiley, C. Clk.
Md., Baltimore	Sept. 10..	Several pumps and electrical equipment.....	Bd. of Awards.
FIRE EQUIPMENT				
Tex., New Braunfels	Aug. 21..	Motor triple combination wagon.....	G. Clark.
Ill., Waukegan	Aug. 25..	Fire hose, 1,000 ft. 2½-inch.....	S. O. Farrell, Chief.
Ohio, Newark	Aug. 30..	Fire hose, 1,000 ft.....	W. Collier, Dir.
Ala., Montgomery	Sept. 1..	Motor chemical and hose; aerial truck, tractor for steamer	J. F. Browder, Chief.
Ill., Dixon	Sept. 3..	Motor chemical and hose wagon.....	M. J. Gannon, Comr.
BRIDGES				
Wis., Green Bay	11 a.m., Aug. 22..	Two bridges	M. Scorey, Co. Comr.
N. Y., Albany	noon, Sept. 3..	Highway bridges, etc.....	D. W. Feck, Supt. P. Wks.
Ohio, Akron	11 a.m., Sept. 8..	Abutment to bridge and culvert.....	C. L. Bower, Clk.

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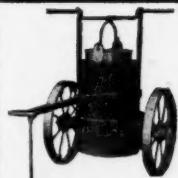
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BOOK DEPARTMENT

MUNICIPAL JOURNAL, - - - 50 Union Square, NEW YORK

NOTICE TO CONTRACTORS

STATE OF NEW YORK

Office of the State Commission of Highways, Albany, N. Y.

Pursuant to the provisions of Chapter 30, Laws of 1909, as amended by Chapter 646, Laws of 1911, and Chapter 80, Laws of 1913, sealed proposals will be received by the undersigned at their office No. 55 Lancaster Street, Albany, N. Y., at one o'clock P. M. on Monday, the eighteenth day of August, 1913, for the repair of the following highways:

Repair Cont. No.	Class of Work.	Road No.	Name of Road.	Town.
468	Brick	1	ALBANY COUNTY. Loudon.	Colonie.
469	H. O.	47	BROOME COUNTY. Chenango River.	Chenango. Dickinson. Conklin. Union. Vestal.
	H. O.	421	Conklin.	Conklin.
	H. O.	275	Union-Main.	Union.
	H. O.	420	Vestal.	Vestal.
	H. O.	174	Endicott.	Union.
	H. O.	374	Main.	Union and Main.
	H. O.	134	Fenton.	Fenton.
	H. O.	175	Chenango-Tow Path.	Fenton.
	H. O.	445	Lytic-Center Lyle.	Lyle.
416	Resurface	127	Park Bridge.	Kirkwood.
			DELWARE COUNTY. Grand Gorge.	Roxbury.
436	H. O.	217	Delaware River.	Delhi.
	H. O.	145	Delhi-Middletown.	Middletown.
	H. O.	239	Deposit-Hales Eddy.	Deposit.
	H. O.	5045	ESSEX COUNTY.	Schroon.
470	Resurface	745	Taylor-Schroon Lake Village.	Webb.
471	H. O.	462	HERKIMER COUNTY. Old Forge-McKeever.	Ellisburg.
472	Resurface	184	JEFFERSON COUNTY. Pierrepont Manor-Ellisburg.	Oyster Bay.
473	C. O.	545	NASSAU COUNTY. Syosset-Cold Spring Harbor.	Oyster Bay.
	C. O.	547	Willets-East Williston-Westbury Pond.	North Hempstead.
	C. O.	436	Jericho Turnpike-Plainview.	Oyster Bay.
	C. O.	435	So. Glenwood-Meeting House.	North Hempstead.
474	Resurface	95	ORANGE COUNTY. Middletown-Goshen.	Wawayanda. Walkill. Goshen.
475	Resurface	42	Newburgh-Woodbury.	New Windsor. Cornwall. Woodbury.
476	Resurface	43	COHOCOTON TURNPIKE, SEC. 2.	Newburgh. Montgomery.
437	C. O.	156	CHESTER-GOSHEN.	Chester. Goshen.
	C. O.	159	Middletown-Slate Hill.	Wawayanda.
479	C. O.	689	ROCKLAND COUNTY. Spring Valley-Knapp's Corners	Clarkstown.
	C. O.	5002	Congers-Long Clove.	Clarkstown.
	C. O.	90	Grassy Point.	Stony Point.
	C. O.	593	Highland Lake-Tompkins Cove	Stony Point.
	C. O.	5165	Long Cove-Haverstraw.	Haverstraw.
477	C. O.	5032	ST. LAWRENCE COUNTY. Canton-Potsdam, Part 2.	Clarkstown.
478	Brick	1	SCHENECTADY COUNTY. Troy-Schenectady, Sec. 1.	Potsdam.
480	H. O.	5047	SCHUYLER COUNTY. Watkins-Montour Falls.	Niskayuna.
				Dix and Montour.

Maps, plans, specifications and estimates may be seen and proposal forms obtained at the office of the Commission in Albany, N. Y., and also at the office of Division Engineer, Perry Filkin, Realty Building, White Plains, N. Y., for contracts in the counties of Nassau, Orange and Rockland; also at the office of Acting Division Engineer, A. S. Mirick, Humane Building, Albany, N. Y., for contracts in the counties of Albany, Essex and Schenectady; also at the office of Acting Division Engineer, William E. Petty, Cleveland Building, Watertown, N. Y., for contracts in the counties of Herkimer, Jefferson and St. Lawrence; also at the office of Acting Division Engineer, D. M. Edgerton, Press Building, Binghamton, N. Y., for contracts in the counties of Broome, Delaware and Schuyler.

The special attention of bidders is called to "Information for Proposers" in specifications.

Proposals for each contract must be presented in a separate sealed envelope endorsed on the outside with the number of the repair contract for which the proposal is made. Each proposal must be accompanied by a New York draft or certified check payable to the order of the State Commission of Highways for an amount equal to at least five per cent. of the amount of the proposal which such draft or check accompanies.

This draft or check will be held by the Commission until the contract and bond are duly executed.

The successful bidder will be required to give a bond for fifty per cent. of the amount of the contract; such bond to be executed by a surety company to be approved by the Commission, or a bond secured by the deposit of collateral securities to be approved by the Commission.

The right is reserved to reject any or all bids.

JOHN N. CARLISLE, Commissioner.
R. K. FULLER, Secretary.

STREETS AND ROADS

Tallahassee, Fla.—Election will be held October 14 on the issue of \$150,444 bonds for roads.

St. Joseph, Mo.—Property owners on Madison st. have petitioned for concrete paving.

Amsterdam, N. Y.—Cost of paving West Main st. is estimated at \$135,500.

St. Johns, Ore.—Resolutions for improving a number of streets have been introduced.

Bishop, Tex.—Election will be held Aug. 9 to vote on \$37,000 bond issue for drainage and for street improvements.

Galveston, Tex.—On September 26 taxpayers of county will vote on issue of \$550,000 bonds for roads and sea wall.

CONTRACTS AWARDED.

Eagle Rock, Cal.—Robert Law awarded the contract at \$11,614.72 for grading, oiling and macadamizing, etc.

Monrovia, Cal.—For improving Fallingleaf ave. has been awarded to B. R. Davidson Contracting Co., at \$20,975. The work consists of 8,700 lin. ft. of grading and oiling at \$1 per foot; 28,351 sq. ft. of gutter at 13.4 cts.; 17,000 lin. ft. of cement curb at 30 cts.; corrugated iron and concrete culverts; \$3,475 complete.

San Diego, Cal.—For paving with asphalt 25th, B, 28th, 30th and Beech sts. has been awarded to Barber Asphalt Paving Co. at \$100,000.

Groton, Conn.—For a section of road in the town of Groton, bids opened by State Highway Commission at Hartford, July 28, has been awarded to the A. Vito Construction Corporation, Thompson, at \$26,575.

New Haven, Conn.—For paving with asphalt Elm st. has been awarded by Permanent Paving Commission to C. W. Blakeslee & Son at \$10,564.

Redding, Conn.—For paving with trap rock the Lovetown State Road has been awarded to B. D. Pierce Co., of Bridgeport, at about \$10,000.

Oakland, Ill.—By Highway Commissioners for building rock road to G. W. Kirkpatrick, and contract for gravel road between Oakland and Ashmore, to Childress & Cutler, at \$20 per mile for grading and \$1.50 a yd. for gravel.

Peoria, Ill.—For paving with brick Wayne st. awarded by Board Local Improvements to John McAllister at \$8,239.

Ft. Wayne, Ind.—By County Commissioners for constructing 29,275 ft. of Egerton road with stone to Rohy & Williams Co. at \$16,616.

Marion, Ind.—The County Commissioners awarded contracts for five roads, two of which are in Van Buren and three in Center. The contracts were awarded on the following bids: Isaac S. Tinkle stone road, Van Buren Township, Miles & Shaffer, \$4,267; Fred Drake tarvia road, Van Buren Township, Dbrook & Brumfiel, \$7,315; J. Q. Thomas tarvia road, Center Township, Dbrook & Brumfiel, \$2,014; J. M. Barnard brick road, Center Township (15th st.), Miles & Shaffer, \$8,446; Frank J. Draper gravel road, Center Township, Dillard Artis, \$2,385.

Clear Lake, Ia.—By City Council for 14 blocks concrete pavement awarded to Garland & Shaffer at \$1.43 per sq. yd.

Louisville, Ky.—By Board of Public Works for paving with asphalt Jefferson st., to American Standard Asphalt Co., 1st and A sts., at \$1.49 per sq. yd., and with asphalt on 6th st. to Kentucky & Indiana Construction Co., at \$1.50 per sq. yd.

Baltimore, Md.—By Board of Awards for paving under Contract 123 to the Baltimore Asphalt Block & Tile Co., of Baltimore, at \$20,212.

Grand Rapids, Mich.—By Board of Public Works for paving with brick Bartlett st. to Hilding & Robe at \$1,062; for paving with brick Ionia ave. between Fulton and Oakes sts. S. W. to Carpenter & Anderson.

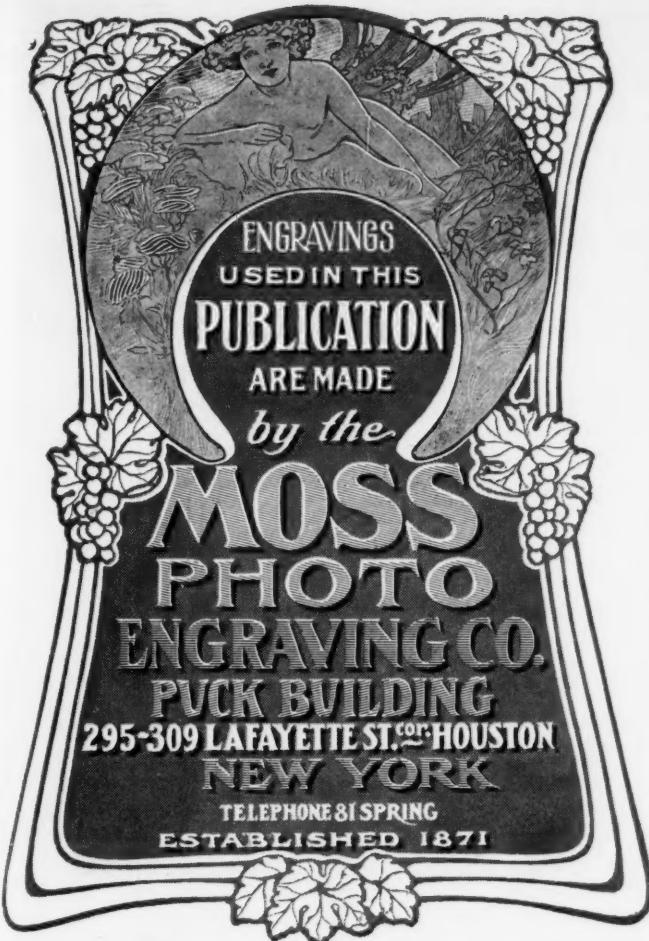
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CHICAGO BOSTON
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Ithaca, Mich.—Contract for paving from plans of Smith & Boulay Co., The Nesby, Toledo, O., has been awarded to W. R. Caldwell, of Detroit, on asphaltic concrete, \$18,646 sq. yds. at \$1.45 per sq. yd. Total cost, \$35,575.

St. Johns, Mich.—Contract for paving with cement Walker st. has been awarded to Jas. A. McKay, of Detroit, at \$15.00 per.

St. Paul, Minn.—Contract has been awarded to the Barber Asphalt Co. for Trinidad asphalt at \$26 a ton.

New York, N. Y.—Bids were opened July 31 at the office of the Park Board for paving with asphaltic concrete upon a cement concrete foundation, setting cement curb, and otherwise improving Riverside Drive, between 94th and 110th sts. Asphalt Construction Co., 208 Broadway, \$85,265; the Aztec Asphalt Co., Inc., 90 West st., \$78,265; Barber Asphalt Paving Co., 233 Broadway, \$82,833; Sicilian Asphalt Paving Co., 41 Park Row, \$89,990; Uvalde Contracting Co., 1 Broadway, \$81,830.

Contracts have been awarded for paving as follows: W. 230th st., with sheet asphalt by Uvalde Asphalt Paving Co., 1 Broadway, at \$15,299; with bituminous concrete on Vyse ave., to Dayton Hedges, 1451 Broadway, at \$12,665.

Coalgate, Okla.—City has let contract for paving 13 blocks of Byrd st. with asphalt to the Westrumite Co., of Whitling, Ind.

El Paso, Tex.—Bid of the Texas Bitulithic Co. to pave Montezuma st. with light bitulithic at \$1.46 per sq. yd. has been accepted. Also, same company's bid of \$1.77½ for standard bitulithic.

SEWERAGE

Monroe, Mo.—Contract for constructing sewers has been awarded to H. B. Watters & Son, of St. Louis Mo., at \$7,543. Other bidders were: Bell Hudson Construction Co., Poplar Bluffs, Mo., \$8,064; Halpen, Boyle & Beher, Kansas City, Mo., \$8,700; Brown Bros., Kansas City, Mo., \$7,848; Tonkawa Construction Co., Tonkawa, Okla., \$8,246; Des Moines Bridge & Iron Co., Des Moines, Ia., \$7,589; Henry Rees, Quincy, Ill., \$9,888; Commercial Construction Co., Kansas City, Mo., \$8,350. Engineers, Burns & McDonnell, Kansas City.

Trenton, N. J.—By City Council to Antonio De Lucia, 55 Butler st., Trenton for constructing sewers in Columbus and Revere aves. and other streets, at \$5,970.

Charlotte, N. C.—Contract for constructing 13.6 miles of main and lateral sewers has been awarded to Sullivan, Long & Hagerty, of Bessemer, Ala., at the following bid: 50 ft. 12-in. terra cotta pipe sewer, 10 to 12 ft. deep, 84 cts.; 510 ft., 8 to 10 ft. deep, 72 cts.; 2,190 ft., 6 to 8 ft. deep, 56 cts.; 1,510 ft., 6 ft. deep, 51 cts.; 350 ft. 10-in. pipe, 12 to 14 ft. deep, 90 cts.; 810 ft., 10 to 12 ft. deep, 78 cts.; 2,930 ft., 8 to 10 ft. deep, 65 cts.; 6,370 ft., 6 to 8 ft. deep, 50 cts.; 2,150 ft., 6 ft. deep, 45 cts.; 500 ft. 8-in. pipe, 12 to 14 ft. deep, 85 cts.; 1,700 ft., 10 to 12 ft. deep, 66 cts.; 11,970 ft., 8 to 10 ft. deep, 48 cts.; 34,970 ft., 6 to 8 ft. deep, 68 cts.; 1,620 ft. 6 ft. deep, 35 cts.; 1,000 yds. rock, \$3.50; 169 manholes, each \$30; 25 flush tanks, each \$63; 198 ft. 10-in. c.i. pipe, 95 cts.; 108 ft. 8-in., 85 cts.; 3,250 ft. 15-in. terra cotta pipe, 6 ft. deep, 68 cts.; 100 ft. 8-in. pipe, 14 to 16 ft. deep,

99 cts.; 800 ft., 16 to 18 ft. deep, \$1.40. Total without time \$45,025, and with time, \$50,650. Time of completion, 225 days. Totals of other bids received were —(a) without time and (b) with time: Foard & Blanton, Charlotte, (a) \$51,768, (b) \$54,268; Case & Cothran, Rock Hill, S. C., (a) \$51,990, (b) \$55,919; Dabbs & Myers, Charlotte, (a) \$45,701, (b) \$50,701; Porter & Boyd, Charlotte, (a) \$48,965, (b) \$53,965. Jos. Firth, City Engr.

New Rockford, N. D.—Contract for reconstructing sewer system is reported awarded to James Kennedy, of Fargo, at \$79,421.

WATER SUPPLY

Girard, Ala.—Arrangements have been completed for water works. Thirty fire plugs will be installed.

Red Bluff, Cal.—Election will be held in November to issue \$85,000 water works bonds.

Tehama, Cal.—On Sept. 16 election will be held for issuing \$10,000 for water system.

Bristol, Conn.—Election on September 8th, citizens will vote on the proposed purchase of water plant.

Fergus Falls, Minn.—City has secured a loan of \$35,000 to be used in constructing a new water plant.

Maysville, N. D.—On account of a technical error another election will have to be held on the question of bond issue for water works.

Tague, Tex.—Petition has been presented to Council asking for a water works having capacity of 100,000 gallons per day.

Barbersville, W. Va.—Citizens have decided to issue \$12,500 for water works.

Proposal Advertising

Municipal officials will serve their constituents well by seeing that PROPOSALS FOR MUNICIPAL IMPROVEMENTS of all kinds are inserted in

Municipal Journal

Publication Office, - - - - - 50 Union Square, New York

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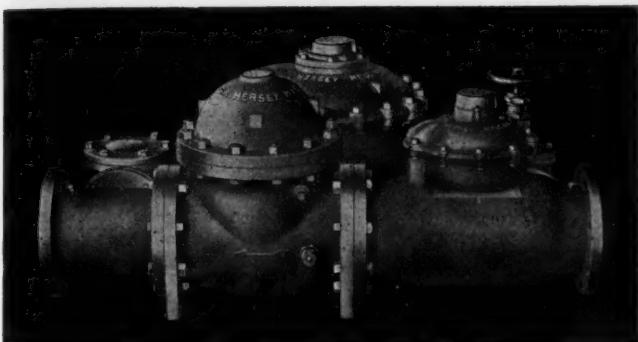
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Dependable Service Products, Water Works Brass Goods, Curb Boxes, Etc.

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Manufacturers of the Largest Sluice and Gate Valves in America.

Gates of any type for any pressure, and hydraulically and electrically operated. Write for Bulletin 12.

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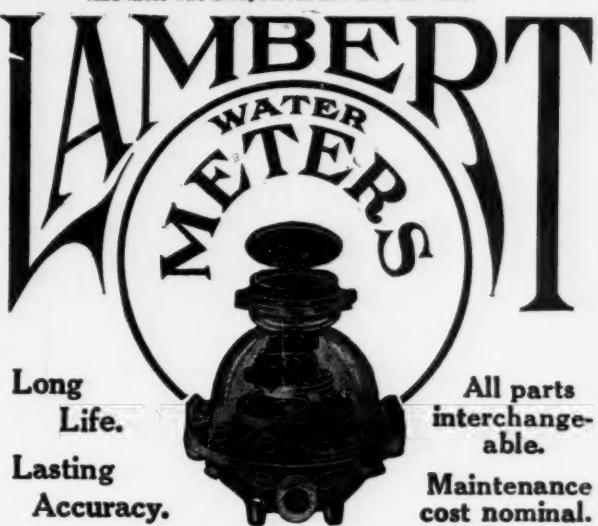
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Let us tell you something of the efficiency of our Water Meters and the various types which we manufacture.

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cost nominal.

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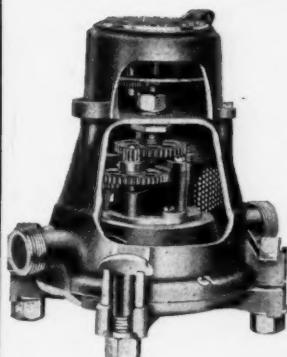
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NOTICE TO CONTRACTORS

STATE OF NEW YORK

Office of the State Commission of Highways, Albany, N. Y.

Pursuant to the provisions of chapter 30, Laws of 1909, as amended by chapter 646, Laws of 1911, and chapter 80, Laws of 1913, sealed proposals will be received by the undersigned at their office, No. 55 Lancaster Street, Albany, N. Y., at 1 o'clock P. M. on Tuesday, the 19th day of August, 1913, for the improvement of the following highways:

County.	Road. No.	Name	Approx. Length.	County.	Road. No.	Name	Approx. Length.
Broome	5390	Binghamton City-State Hospital	0.83	Oneida	5385	Oriskany Falls Village	1.09
Chemung	1093	Elmira City-West Church St.	0.36	Oneida	5395	Utica City; Turner Street	0.38
Chenango	5391	Sherburne Village	0.40	Ontario	5397	Maple Village; Main Street	1.74
Dutchess	1051	Matteawan Village	1.28	Rensselaer	1115	Castleton-Rensselaer, Part 2	3.71
Erie	1124	Cattaraugus Creek, Part 1	0.76	Rensselaer	1116	Castleton-Rensselaer, Part 1	4.51
Erie	5407	East Aurora-Holland	9.95	Rensselaer	1119	Troy City-Spring Avenue	1.77
Erie	5317	Athol Springs-Waldon Cliffs	5.87	Rensselaer	1120	Troy City; Winter Street	0.34
Fulton	1127	Gloversville City	1.73	Rensselaer	1121	Rensselaer City-Washington Avenue	1.65
Greene	5369	Coxsackie Village	2.23	Rensselaer	1122	West Stephentown; Alps	2.70
Jefferson	1129	Lewis County Line - South Champion	2.45	Rensselaer	1123	Troy City; Leversee Road	0.51
Jefferson	1130	Alexandria Bay-Church Street	0.37	Rensselaer	5393	Troy City; Hoosick Street	0.52
Jefferson	1131	Sackets Harbor	2.45	Rockland	5389	Haverstraw-West Haverstraw Spring Valley Vil; Suffern Village; Hilburn Village	1.58
Jefferson	1132	Ellisburg-Belleville	2.29	Rockland	5388	Waddington Village	3.58
Jefferson	1133	Theresa-Antwerp, Part 1	4.72	St. Lawrence	1125	Tyrone Town Line; Reading	1.04
Jefferson	1134	Watertown City-Gifford and State Streets	1.00	Schuyler	1128	Corning City; Market & West Poultney Streets	0.85
Jefferson	5402	Carthage Village; State St.	0.35	Steuben	5401	Fort Edward Village	0.57
Jefferson	5403	Clayton Village	1.17	Washington	1083	Granville Village	1.75
Lewis	1092	Lowville Village	0.51	Washington	5404	Ardsley Village	1.46
Livingston	5398	County Line-Dansville	4.40	Westchester	1053		
Niagara	1087	North Tonawanda City-Erie Avenue	2.77				

Maps, plans, specifications and estimates may be seen and proposal forms obtained at the office of the Commission in Albany, N. Y., and also at the office of Division Engineer Perry Filkin, Realty Building, White Plains, N. Y., for highways in the counties of Dutchess, Rockland, and Westchester, also at the office of Acting Division Engineer A. S. Mirick, Humane Building Albany, N. Y., for highways in the counties of Fulton, Greene, Rensselaer and Washington; also at the office of Acting Division Engineer William E. Petty, Cleveland Building, Watertown, N. Y., for highways in the counties of Jefferson, Lewis, Oneida and St. Lawrence; also at the office of Division Engineer Frederick Strong, 433 South Salina Street, Syracuse, N. Y., for highways in the counties of Chenango, Ontario. Also at the office of Division Engineer James P. Morrissey, 423 Cutler Building, Rochester, N. Y., for highways in the counties of Erie, Livingston, and Niagara; also at the office of Acting Division Engineer D. M. Edgerton, 901 Press Building, Binghamton, N. Y., for highways in the counties of Broome, Chemung, Schuyler and Steuben.

The especial attention of bidders is called to "Information for Proposers" on pages 6 and 7 of the specifications.

Proposals for each road must be presented in a separate sealed envelope endorsed on the outside with the name and number of the road for which the proposal is made. Each proposal must be accompanied by a New York draft or certified check payable to the order of the State Commission of Highways for an amount equal to at least five per cent. of the amount of the proposal which such draft or check accompanies.

This draft or check will be held by the Commission until the contract and bond are duly executed.

The successful bidder will be required to give a bond for fifty per cent. of the amount of the contract; such bond to be executed by a Surety Company to be approved by the Commission, or a bond secured by the deposit of collateral securities to be approved by the Commission.

The right is reserved to reject any or all bids.

R. K. FULLER, Secretary.

JOHN N. CARLISLE, Commissioner.

CONTRACTS AWARDED.

Hayden, Colo.—J. S. Schwartz, Colorado Springs, has been awarded the contract for the construction of the water works. The work amounts to \$27,782.

Fontanelle, Ia.—Contract for constructing water works, from plans of Hall & Adams of Centerville, to the Alamo Engine & Supply Co., of Omaha, Neb., at \$12,375.

Sloan, In.—Contract for water works extension is reported awarded to the Lytle Construction Co., of Sioux City, at \$10,000.

Lockport, N. Y.—F. J. Levalley has been awarded contract for 8-inch water mains on Walnut st. at \$4,500.

Marion, N. Y.—Water Commissioners have let contract to Charles L. Lewis, Ilion, N. Y., for \$23,023. Contract calls for about 4 miles pipe, but does not include pump and motor for which \$7,000 are available.

New York, N. Y.—By the Board of Water Supply for Contract 70, furnishing and delivering bronze gate valves and

appurtenances for the city tunnel of Catskill Aqueduct, to Paul S. Reeves & Co., 1415 Catherine st., Philadelphia, Pa., at \$162,788 (bids opened July 22).

Raleigh, N. C.—By City Commissioners for constructing a concrete dam for an impounding reservoir to Porter & Boyd, of Charlotte, at \$13,750. Other bidders: W. H. Hunnycutt, Raleigh, \$16,925; Thompson & Mosley, Greenboro, \$14,020; C. W. Requa, Charlotte, \$16,520, and Gabronrey & Son, Jacksonville, Ala., \$14,180.

Salt Lake City, Utah.—J. B. Mullins was the low bidder for constructing city dam on the lakes at the head of the Big Cottonwood, at the canyon, at \$60,138. J. P. Moran's bid was \$94,685.

LIGHTING AND POWER

Quincy, Ill.—Light Committee to expend \$1,000 for electroliers.

PROPOSALS

HEAD HOUSE, PUMPING STATION AND CONDUIT.

Baltimore, Md.

Sealed proposals endorsed "Bids for Construction of Head House, Pumping Station and Conduit, Lake Montebello, Water Department, Contract No. 21," addressed to the Board of Awards of Baltimore City, will be received at the office of the City Register, City Hall, Baltimore, Md., until 11 A. M., Wednesday, August 27th, 1913, for making all excavations and embankments, and constructing the concrete work for the above named structures, as shown on plans on file in the office of the Water Engineer, City Hall, Baltimore, Md.

Plans and specifications can be obtained at the office of the Water Engineer, City Hall, Baltimore, Md., on or

after August 11th, 1913. A charge of Twenty Dollars (\$20.00) will be made for each set of plans and specifications; this amount will be refunded upon the return of these plans and specifications before August 30th, 1913, in good condition. Specifications used in making a bid will be considered as returned.

A certified check of the bidder on a clearing house bank made payable to the Mayor and City Council of Baltimore for the sum of Eight Thousand Dollars (\$8,000) will be required with each bid.

The successful bidder will be required to give bond to comply with the City Charter respecting contracts.

The Board of Awards reserved the right to reject any or all bids.

Approved, August 6th, 1913.

EZRA B. WHITMAN,
Water Engineer.

JAMES H. PRESTON,
President Board of Awards.

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